The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 97, NO. 1 CHICAGO, ILLINOIS JULY 4, 1931

DERMATOLOGY

ITS PAST, ITS PRESENT, ITS FUTURE

CHAIRMAN'S ADDRESS *

ELMORE B. TAUBER, M.D.

CINCINNATI

Dermatology evolves itself thus for a presentation:

Historically, it is divided into—

Ancient: Egyptian, Hindoo, Jewish, Greek and Roman.
Medieval: Persian and Arabian.
Modern: French, English, German and American.
The future: Who knows?

Characteristically and clinically, the past concerned itself with the morphology and color and was kaleidoscopic.

The present concerns itself with the microscope and with pathology and is indefinite.

The future will concern itself with the laboratory and chemistry and will be definite.

Ancient dermatology is shrouded and obscure and its origin is to be found in Egypt, Persia, India and among the Jews, then successively up through the Greeks, Romans and Arabians and up to the more recent times of Willan, Bateman, Biett, Rayer, Hebra and Kaposi in England, France, Austria and Germany. In ancient times, little was said of the skin. This is rather remarkable, as the easiest organ to describe was absolutely ignored, probably as the obvious is so usually neglected.

In Egypt, the Papyrus of Ebers and the Palimpsest of Ptah-amen mention tumors and eruptions, roughness, blotches, ulcers of the skin, leprosy, boils and gangrene. Cosmetics were recorded rather more fully than definite skin lesions. The Jews had no special books; the Bible and the Talmud have references to leprosy and ulcers and it can be recalled that Job was cursed with boils. The Hindoos believed that a drunkard would have skin diseases and an incendiary erysipelas. Yusuf Memoteb described leprosy, elephantiasis, boils and scabies fairly, and probably chickenpox was described by him but as a poison product, not as a disease. Several of their writers mention that arsenic was used in most cases and often mercury and sulphur.

Baths and poultices containing mud, perfumes and frankincense were applied; while sun treatments were given in solariums for boils and crusts.

In the golden era of Pericles, the Greeks with the advent of Hippocrates (460 B. C.) gave a fairly true account of psoriasis (alphos), erysipelas and generalized eruptions corresponding to the exanthems. Boils, tumors and buboes were described and even scabies (psora), which probably was eczema or a combination of the foregoing and a secondary infection as well.

Then came an hiatus until the Roman era with Celsus (53 B. C.). His writings are the only valuable ones on dermatology that came after the time of Hippocrates. He definitely speaks of abscesses, boils, warts, erysipelas, scabies, psoriasis, leprosy, impetigo and eczema. The seventy or eighty writers between Hippocrates and Celsus, such as Scribonius, Largas, Pliny, Discorides and Aretaeus the Cappadocian, have contributed practically nothing. Following Celsus, two important writers are mentioned, Claudius Galen (131-201 A. D.) and Paulus Aeginata (602 A. D.), who both speak of diseases with skin symptoms.

Little was heard of dermatology for the next two centuries until the time of Avicenna of Bagdad, Rhazes and Avenzoar of Cordova. They copied the writings of the Greeks and Romans and added their own clinical observations. Hieronymus Mercurialis of Venice in the Sixteenth Century (1572) gave a fairly accurate compilation of these ancient writings, but his reports of cutaneous diseases were negligible. Then came Daniel Turner of England, in 1712, with a treatise on diseases incident to the skin, which was rather verbose and lengthy and added little to our knowledge.

Joseph von Plenck in 1776, of Vienna, in his work on diseases of the skin, presents a classification of fourteen classes and 120 subvarieties. In the next year Lorrey of France, in his book, gave a fair account of clinical symptomatology and lesions incident to the skin. Nevertheless, with all these writings on the subject it can be definitely stated that up to the beginning of the nineteenth century little advance had been made.

We then come to the era of Robert Willan, 1757-1812, to whom we should all turn with admiration and receive inspiration, as I believe he was the most erudite and classic figure in all dermatologic literature. He was a veritable giant, a beacon light for us all to follow. His profound knowledge enabled him to review the works of the Greeks, Romans and Arabians and then proceed to classify and sort this knowledge and to lay the foundation for a real edifice to come. Up to Willan's time, little advance had been made. It has been justly said that to attempt to praise Robert Willan would be but a wasted effort, such as to guild refined gold, to paint the lily or to perfume the violet. All intellectual attainments were Robert Willan's, but he died before his work was finished and it was continued by his pupil Bateman (1798-1841), who completed Willan's Cutaneous Diseases.

The French at the same time with Alibert (1766-1837) and his pupil Biett (1781) had great influence on French dermatology. Rayer (1793-1867), who followed

* Read before the Section on Dermatology and Syphilology at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

Biett, made even greater advances. His successors were Devergie (1798-1879), Cazenave (1795-1877) and Bazin (1807-1878).

While these men influenced French dermatology, England came under the influence of Erasmus Wilson (1809-1884), who did much to popularize dermatology; early dermatology, therefore, was vitally influenced by both the British and the French. It is quite curious to note here, as Hebra himself remarked, that the German confrères, during the early part of the nineteenth century, were content to translate the French and English textbooks and reproduce the plates of Willan and Bateman.

Another strange incident is the early death of the four British dermatologists who had all too little time to impress themselves on dermatology. Bateman died at 43, Tillbury Fox at 43, Willan at 55 and Hillier at 37. France was longer lived as to her illustrious dermatologists. Cazenave (1797-1877) lived to be 80, Rayer (1793-1867) 74, Devergie (1798-1879) 81 and Bazin (1807-1878) 71. Dr. H. D. Bulkley of New York, in 1831, studied in Paris under Alibert and Biett and on his return to America in 1837 established the Broome Street Infirmary for Diseases of the Skin and there delivered the first lecture in North America on the subject of diseases of the skin. Then England came again under the tremendous influence and dominance of Erasmus Wilson, who profoundly influenced English dermatology. He was a fellow of the Royal College of Surgeons, the author of several books and editor and writer for the *Journal of Cutaneous Medicine*, the second journal devoted entirely to diseases of the skin (1816-1880). He was interested in all social, scientific and political movements of his time as well. At the same time Ferdinand von Hebra (1816-1880), the pupil of Rokitansky and Skoda, made an impression on dermatology and by his intense application and work founded the Viennese school. Hebra was a great clinical teacher and he trained Neuman, Auspitz, Pick and others, but none achieved greater distinction than his own son Hans and his son-in-law Moritz Kaposi (1807-1902).

Vienna had its tremendous clinics under one roof. This was a great advantage over all other dermatologic centers, where this was not the case. Hebra's textbook was completed by Kaposi. Diseases of the skin were placed by him on a pathologic basis. Vienna soon became the mecca for the early dermatologists and so Hebra's and Kaposi's doctrines were spread over all the civilized world by his pupils. The first era of modern dermatology, that of describing and classifying the objective phenomena, was succeeded by the natural second, that of the study of its histopathology, which was brought to a high degree of perfection under Kaposi, who was Hebra's successor in the dermatologic chair in Vienna.

The third great era arose from the discovery that many diseases are caused by microparasites. Schönlein discovered the fungus of favus in 1839, and from that beginning has been built up gradually our knowledge of the flora of the skin.

Dermatology could not fail to be influenced by the work of Pasteur and Lister. Using these discoveries and their work, great strides were made by Unna, Sabouraud, Crocker, Hutchinson, Besnier, Hallopeau, Fournier, Brocq, Darier, Neisser, Pick, Lassar, Joseph, Jadassohn, Hyde, Montgomery, Stelwagon, White, Pusey and Pollitzer.

This shrine of Hebra caused a neophyte group to arise who evolved a nomenclature that was not understood except by the initiate and, as a result, a spread of mysticism and lack of comprehension by those not in the fold and a return to more medieval aspects took place; but a renaissance soon dawned, and modern, or scientific, dermatology was born. This Teutonic and Austrian domination divided dermatology and general medicine to an extent everywhere, but especially in England, thanks to Willan, Bateman and Fox. They still maintained the principles that the skin was a part of the human body and not merely an envelop, as the Austrians and Germans in the South contended. The northern Germans with Unna opposed Hebra and Kaposi by trying to fix cutaneous diseases on a basis of pathology and made definite contribution to dermatology as a biologic science. This caused many bitter controversies and aroused many jealousies that time is just beginning to erase.

American physicians began to study in Europe about 1870 and, returning, digested what was given them. In the last three decades, however, Europe, as far as we are concerned, has lost its Holy Grail and our students abroad find quite early that, although we still need the help and experience of that older civilization, we have developed our own work to such a point that we are able to give as much as we receive. Of course, the clinical material abroad is concentrated and is more readily used for research work, but we are overcoming this handicap surely and steadily. We are slowly creating a group that up to the present has not led to a definite school or schools; but it is still in a pioneer stage. I can think of four centers in America that are steadily advancing and are creating an American dermatology that can and will stand the critical assay of time and that will give us a definite work and school to place it in the foremost position where it belongs.

Metabolic studies, sympathetic nerve changes in relation to dermatology, biochemistry and clinical medicine in its broad phases will connect these relations to skin diseases in a very definite manner.

The development of synthetic organic chemistry in the past fifty years has brought chemistry into close contact with medicine and dermatology. The most spectacular contribution of organic chemistry is in chemotherapy. This feature in the medical and biologic aspects of chemistry is the effect on living tissue of minute traces of chemical substances. These substances are the hormones, vitamins and enzymes. Although the chemical nature of most of these awaits solution, their clinical importance is rapidly increasing.

Three decades ago, Bayliss and Starling separated secretin from pancreatic juice and, since it appeared to be a representative of a numerous class of similar agents, these were designated by the general term hormone, meaning an excitant or, colloquially speaking, a walking delegate. One other hormone has yielded to chemical investigation and has proved to be a relatively simple organic compound. This is epinephrine, a secretion of the suprarenal gland. Its synthesis from components of coal tar has been effected also without especial difficulty, but the majority are more complicated and do not yield. Thyroxine, which has to do with regulation of the metabolic rate, and insulin, which regulates the metabolism of sugar, are striking examples, as is also the hormone in the anterior lobe of the pituitary, which controls the activity of gonads and certain other ductless glands. These are both a lure and a despair to investigators, as they will not yield up

V 97
1931

all their mystery. The ovarian hormone is a crystalline substance of a lipoid class and is so stable that it stands the action of heat, acids and alkalis but still defies synthesis.

Nutrition factors also offer many possibilities. Here again we are confronted with minute chemical substances (the vitamins), which resemble hormones in their necessity to maintain health but differ that they are for the most part of external origin.

At the present time the existence of six vitamins has been demonstrated, and that of a seventh is indicated; but of all these there is only one regarding the constitution of which we possess more than a few clues.

Equally obscure is the composition of the enzymes; in one respect they should be simpler, as they promote changes in purely chemical systems without intervention of living tissue; but, as yet, how they act will be understood only when their chemical constitution is understood.

There is reason to believe that an enzyme acts by first forming a labile additive product to the material on which it acts, but these additive products are shifting ones, sometimes rapid, at others very slow in action. As yet no clear conception has been obtained of the fundamental in these types. Concerning the chemistry of the proteins, this explanation will be long in coming as our fundamental knowledge is gossamer-like; uncertainty rather than certainty is our conception of their make-up. The overwhelming number of combinations that it is possible for the twenty known constituent amino-acids to form has been calculated to be two million million million, each taken only once; and since it is possible that these components can also occur more than once, the possible protein structure becomes truly astronomical. The significance of this in relation to medicine is obvious; the interdependence of science in all branches and of chemistry to medicine in particular seemingly comes more and more to the fore.

Future dermatology with an understanding of the real medical interpretation will be correlated in terms of metabolism and ductless gland dysfunction; also in relation to infections and allergy. This will lead to an interpretation and understanding of biochemical relations which at present are more or less obscure. Obviously, neodermatology will differ in its facts, and the contact between dermatology and general medicine will be welded into a real union. Dermatology will be cutaneous medicine. Dermatologists will have to know clinical medicine, serology, bacteriology, biochemistry, histology, immunity and physical therapy, as all these factors are in a greater or lesser degree causes or necessities for true interpretation of skin disorders. The future will depend on a greater evaluation of all these methods, with a synchronization of them that will bring a knowledge of dermatology that now is seemingly only a vision. This actually will be the dermatology of the future.

Ignorance and fallacies of former generations are always recurring to disturb advances, carefully made and controlled. These misconceptions especially abound in the cosmetic field, and their exploitation is made much easier as human frailties are easily played on and nowadays it is not only the charlatan and the quack, but also the beauty cultist who have developed large followings and have hook-ups in most large towns; also the large manufacturer who uses national advertising, radio and all means to take advantage of human weaknesses.

Dermatology must again be made to control syphilis, burns, erysipelas and many other diseases that have slipped away from dermatologists. While the interest of the internist and the surgeon in these is easily recognized, dermatologists must insist that the teaching and treatment belongs to them now even as it did in former days. The Wassermann test and arsphenamine have caused dermatologists to lose part of their domain over syphilis; serums have done the same thing with regard to erysipelas and skin grafting and blood transfusions with regard to burns. But dermatologists should insist that there can be no separation and that they are dermatologic conditions and are rightly their work.

Empiricism has given way to scientific procedures based on broader concepts of medicine. An adaptation of the principles of general medicine to cutaneous diseases with an understanding of constitution, environment, focal infection, blood chemistry, sensitization, metabolic dysfunction, and chemical sensitivity will open up new vistas, for we are still only on the threshold of our journey, pioneering our way, laying a footpath that some day will become the broad highway, traveled and used and understood by all of us.

So now finally, I wish to make a definite and unequivocal statement that a thorough knowledge of all other diseases will be necessary for the study and the practice of the dermatology of the future.

19 West Seventh Street.

ARSENIC AS A THERAPEUTIC AGENT IN CHRONIC MYELOGENOUS LEUKEMIA

PRELIMINARY REPORT *

CLAUDE E. FORKNER, M.D.
AND
T. F. McNAIR SCOTT, M.R.C.P.(LONDON)
BOSTON

In the latter part of the nineteenth century arsenic, chiefly in the form of solution of potassium arsenite (Fowler's solution), was the standard remedy in diseases of the blood. It was used to increase the red blood cells and hemoglobin in certain anemias and to decrease the white blood cells in leukemia. Cutler and Bradford [1] were among the first to study quantitatively and scientifically the effects of arsenic on the cells of the blood. In 1878 they published the results obtained in five cases studied at the Boston City Hospital; two of the cases showed a normal blood, two were cases of anemia, and one was a case of leukemia. They made careful total counts of the white and red blood cells and found that the administration of solution of potassium arsenite in health caused a progressive decrease in the number of red and white blood corpuscles. In simple anemia they found an increase at first of both red and white blood cells, but afterward there was a steady diminution of both. Their patient with leukemia, apparently of the myelogenous type, possessed more than one million white blood cells per cubic millimeter, and after nine and one-half weeks of treatment the count was

* From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard) Boston City Hospital, and the Department of Medicine, Harvard University Medical School.

1. Cutler, E. G., and Bradford, E. H.: Action of Iron, Cod Liver Oil and Arsenic on the Globular Richness of the Blood, Am. J. M. Sc. **75**:74, 1878.

reduced to 8,700 white blood cells per cubic millimeter. During this time the red blood corpuscles were reduced from 3,064,000 to 1,841,500 per cubic millimeter.

There are a few other isolated reports of cases of leukemia, treated with solution of potassium arsenite, in which blood counts were reported and in these the number of circulating white blood cells was temporarily much reduced; the spleens became smaller and the patients were improved in other ways. None of these studies concerned any significant series of cases or indicated exactly what might be expected from therapy with arsenic nor was it emphatically shown that the improvement was not merely a coincidence and the result of spontaneous remissions in the disease.

With the advent of roentgen treatment and the demonstration by Senn,[2] in 1903, of its effect in leukemia, the administration of solution of potassium arsenite fell into disrepute. Current textbooks often do

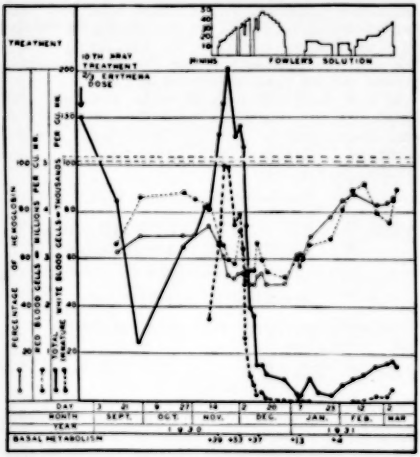


Chart 1.—Course in case 1.

not mention the use of arsenic in leukemia, or sometimes it is referred to as possibly influencing the anemia favorably. If in the past any conclusive evidence was present which pointed toward arsenic as having regularly reduced the number and changed the character of the leukocytes in leukemia, such knowledge appears to have escaped the critical consideration of the present generation.

We have studied the effects of the administration of solution of potassium arsenite in ten cases of chronic myelogenous leukemia. Nine of these cases have shown entirely similar responses to the treatment. There has occurred a reduction of the white blood cell count to normal or nearly normal, an arrest of the progress of the anemia, a reduction in the size of the spleen and liver, and improvement in the patients' condition manifested in other ways. One patient, after four years of intensive roentgen treatment, who was in the terminal stages of the disease, failed to respond to treatment with arsenic.

2. Senn, Nicholas: Case of Splenomedullary Leukemia Successfully Treated by the Use of the Roentgen Ray, M. Rec. **64**: 281, 1903.

Chart 1 illustrates the results of treatment in case 1.

CASE 1.—A man, aged 60, presented the typical picture of chronic myelogenous leukemia of three years' duration.

When the diagnosis was made three years before, he had 85,000 white blood cells per cubic millimeter which, before roentgen treatment was commenced, had mounted to 200,000 with over 30 per cent of immature white blood cells. During the following two and one-half years he received ten series of roentgen treatments, each consisting of two thirds of an erythema dose over the spleen at intervals of about three months. He responded less well to the last treatment given in August, 1930, than to previous treatments.

When seen by us, November 11, two and one-half months later, he appeared pale, worn and sick and had constant pain in the left hypochondrium. The spleen and liver extended 10 cm. and 7 cm., respectively, below the costal margins. The basal metabolic rate measured + 39 per cent. There was a rapidly progressing anemia.

Treatment with slowly increasing doses of solution of potassium arsenite (chart 1) was begun when the white blood cells numbered 133,000 per cubic millimeter. They continued to rise to 200,000 per cubic millimeter and then began to decrease, so that within five weeks the total white blood cell count was within normal limits, the immature cells were practically absent from the blood, the anemia was becoming less marked, the basal metabolic rate was reduced to normal, and the spleen and liver could not be felt. Within a few weeks the patient looked and felt well. He has continued to have a white blood cell count of less than 17,000 per cubic millimeter for almost three months and has continued to feel well.

The total number of red blood cells was rapidly decreasing when treatment was instituted. After a few days the red corpuscle count and hemoglobin became more or less constant at levels around 2,600,000 per cubic millimeter and (50 per cent Sahli) 7.8 Gm. per hundred cubic centimeters, respectively. When the white blood cell count became normal the number of red blood corpuscles gradually rose to 4,600,000 per cubic millimeter and the hemoglobin rose to (86 per cent Sahli) 13.4 Gm. per hundred cubic centimeters, higher values than had been recorded at any other time during the course of his illness.

Before treatment with arsenic was commenced, from 5 to 6 nucleated red cells were encountered per hundred white blood cells. They increased during treatment to 85 nucleated red cells per hundred white blood cells and then entirely disappeared from the blood. A considerable number of the nucleated red corpuscles were megaloblasts.

The number of basophilic granulocytes (basophils) before treatment was from 2 to 4 per cent of the total leukocytes. During the course of treatment they were relatively increased to from 3 to 16 per cent. Their absolute number in this case was decreased. Some of our other cases showed an absolute increase and a relative rise in basophilic granulocytes from a level of from 2 to 4 per cent up to 40 or even 50 per cent of the leukocytes.

The monocytes in this as in some of the other cases rose from a level of 1 or 2 per cent up to as high as 27 per cent of the total leukocytes. The blood platelets were not decreased below normal even in the leukopenic phases.

A biopsy of the sternal bone marrow during the leukopenic phase produced by treatment showed a bone marrow that was intensely red. There were large areas of erythropoiesis and a few small areas in which granulocytes and myeloblasts were developing. This observation strengthened our view that the effect of the drug was really on the developing cells and not merely a redistribution of the cells in the body.

CASE 2.—A man, aged 21, had chronic myelogenous leukemia of five years' duration (chart 2). The results in this case were even more dramatic. The chart is presented in order to show the rise in the white blood cell count as the result of discontinuing the drug after the initial fall in the number of leukocytes. He had been repeatedly treated with roentgen rays and responded well to each series of treatments. The last series was given in October, 1930. Six weeks later he had

V 97
1931

8,000 white blood cells per cubic millimeter. December 13, when we first saw him, he had 327,250 white blood cells per cubic millimeter, 49.5 per cent of which were myelocytes. The number of red blood corpuscles was 3,600,000 per cubic millimeter and the hemoglobin was (74 per cent Sahli) 11.6 Gm. per hundred cubic centimeters of blood. The spleen extended 2.5 cm. and the liver 1.5 cm. below the costal margins. The basal metabolic rate was + 21 per cent.

Treatment was begun with increasing doses of solution of potassium arsenite (chart 2). The results of this treatment are indicated in detail on the chart. The total number of leukocytes was reduced to a low level of 4,000 per cubic millimeter. The red blood corpuscle count rose, reaching a high point of more than 5,000,000 per cubic millimeter, and the hemoglobin rose to (92 per cent Sahli) 14.4 Gm. per hundred cubic centimeters. The spleen and the liver decreased to such an extent that they could not be palpated. The basal metabolic rate decreased to + 11 per cent. The patient felt well and stronger than he had for many months.

From the chart it will be seen that medication was omitted for thirteen days, at the end of which time the leukocyte count began to rise, eventually reaching 38,000 per cubic millimeter. Solution of potassium arsenite was resumed and the count again was forced down to 16,000 per cubic millimeter. The patient developed a mild conjunctival irritation and some dryness and scaling of the skin probably due to arsenic. The medication was discontinued again for a few days and subsequently resumed in small doses. The leukocyte count at the present time is 49,000 per cubic millimeter. He continues to feel very well.

This patient also showed a relative increase in the numbers of basophilic granulocytes and of monocytes, but there was no increase of nucleated red corpuscles. The immature leukocytes practically disappeared from the blood as in the other cases.

COMMENT

It would seem from the results of the studies recorded in this paper that the old empiric notions about the beneficial effect of solution of potassium arsenite in chronic myelogenous leukemia can be well supported by scientific data. The drug appears to have a specific effect on the hematopoietic organs, causing a marked reduction in the total number of the leukocytes of the blood. The complete explanation of just how these changes are brought about is a subject for speculation and for further investigation. The results of treatment are in many respects analogous to those produced by roentgen rays and by radium.

Individual cases vary considerably with reference to the amount of the drug required to produce a remission. Our studies suggest that the best results are to be obtained by the rather rapid and relentless administration of the drug until the desired effect is produced or until beginning signs of intoxication occur. Solution of potassium arsenite should then be discontinued for four or six days and resumed in small daily doses. If the drug is completely withdrawn the white blood cell count remains low for a period of about three weeks and then, as a rule, rises rapidly to a level corresponding to or slightly higher than the initial count and then may subside spontaneously to a lower lever. The administration of the drug must be carefully controlled by frequent studies of the blood and of the patient. Without such control, its administration may be attended with no improvement or with actual harm.

SUMMARY AND CONCLUSIONS

1. Ten cases of chronic myelogenous leukemia have been treated with the administration, by mouth, of solution of potassium arsenite. Nine cases showed striking improvement. One case, in the terminal stage of the disease, showed no improvement.

2. The total numbers of white blood cells have been reduced from several hundred thousand per cubic millimeter to numbers approximating normal.

3. The immature cells have markedly decreased both absolutely and relatively and in some cases have disappeared from the blood.

4. The anemia has in all cases been arrested, and in several cases the red blood cells and hemoglobin values have returned to approximately normal.

5. Simultaneous with the fall in the number of the leukocytes there has occurred in most of the cases a relative increase in the numbers of monocytes and basophilic granulocytes and an increase in the number of nucleated red corpuscles.

6. Blood platelets have remained in normal or moderately increased numbers throughout the treatment, even in the leukopenic phases.

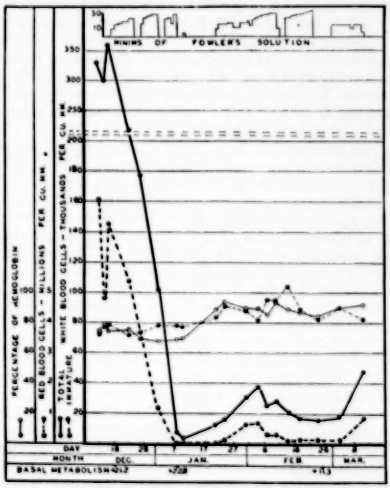


Chart 2.—Course in case 2.

7. The size of the spleen and of the liver has been reduced in each case, and in two instances to such a pronounced degree that these organs were no longer palpable.

8. Biopsy of the bone marrow suggested a return to a red marrow.

9. The basal metabolic rate has been reduced to values approximating the normal.

10. The patients have in most instances gained weight and have felt better than they had for many months.

11. When solution of potassium arsenite was omitted, the spleen and liver again became palpable and the leukocyte count rose within a few weeks, but the improvement could be maintained, at least for a few months, by the regular administration of small doses of the drug.

12. These uncompleted observations suggest that solution of potassium arsenite is of definite value in the palliative treatment of chronic myelogenous leukemia and perhaps can be used in conjunction with roentgen therapy for the best sort of palliative treatment.

ACUTE PERFORATION OF DUODENAL ULCERS

CAUSES OF DEATH AND A CONSIDERATION OF TREATMENT *

BRUCE L. FLEMING, M.D.
PHILADELPHIA

Acute perforation of a duodenal ulcer is a calamity that demands prompt surgical treatment. For this reason surgeons have shown it the greatest consideration. The responsibility of the physician who first sees a patient following perforation is grave. Early diagnosis is essential to early operation—the most important single factor in successful treatment. Frequently the responsibility of the physician does not end with the establishment of the diagnosis. Hospital interns and general practitioners, in many communities in this country, are called on to prescribe postoperative treatment for these patients—an important factor that has received scant consideration. Because of its emergency nature the operative treatment is frequently performed by junior surgeons, sometimes by resident hospital surgeons, and even by the occasional operator. The average mortality rate is high.

An attempt has been made in this investigation to determine the causes of death from perforated duodenal ulcers in the order of their occurrence, the nature and relative frequency of fatal complications, and the important factors influencing these fatalities. The records of all patients who died following operation for this lesion in the wards of the Jefferson Hospital in the period from 1900 to 1929 have been scrutinized and the results tabulated. The surgical literature on this subject has been reviewed and information obtained therefrom is presented.

Perforated duodenal ulcer as a cause of death was first revealed by autopsy and described by Penada in 1793. It was not, however, until 1900 that information on this lesion began to assume the form of systematized knowledge when Weir presented to the American Surgical Association a comprehensive analysis of the cases thus far reported in the literature. In 1901 Moynihan [1] collected reports of forty-nine cases that came to operation following perforation. The resulting mortality rate was 83.6 per cent. Mayo [2] in 1904 reported the cases of six of his own patients operated on with two deaths resulting. From this time on, the reports comprise series of ever increasing numbers and the data given are constantly growing in comprehensive detail.

The symptoms of acute perforation of a duodenal ulcer have been so graphically described and so ably taught that they are common knowledge of senior medical students. Differential diagnosis is adequately treated in modern textbooks on surgery.

The urgent need for early operation following perforation has been pointed out many times by Gibbon,[3] Pool,[4] Moynihan,[5] Deaver,[6] Gibson [7] and others. The importance of this has been emphasized with adequate and most convincing statistical data. It is now generally recognized that hazard is amazingly increased with each hour of delay in operation, and treatment in keeping with this fact has been a powerful factor in lowering the mortality rate.

Modern surgeons have laid stress on technical methods of closing the perforation, and one finds that those in use today as described by Mayo, Moynihan [5] and Cellan-Jones [8] leave little to be desired. It is now a rare occurrence to have leaking occur at the site of perforation following its surgical closure. Only two such instances were reported in more than 1,000 patients covered in this review.

Gastro-enterostomy, performed at the time of closing the acute perforation, has been strongly advocated by some and has given rise to much discussion. In some hands good results have been secured by its use. Its success depends chiefly on the wise selection of early cases, the experience and dexterity of the surgeon, and the care in after-treatment. The claim has not been made, however, nor do results indicate, that the primary mortality rate has been lowered by its use.

Caird [9] has demonstrated the harm of irrigating the abdominal cavity. Many others have stressed the error of this principle and available information indicates that it is being used less frequently each year.

Richardson [10] and others have shown the usual undesirability of drains in the region of the perforation. Caird has testified to the obsolescence of this practice in Edinburgh. Moynihan [1] has observed the fact, which

TABLE 1.—*Causes of Death*

References	Deaths	Shock or Prostration	Peritonitis	Pulmonary Complications	Subdiaphragmatic Abscess	All Others
Smith, M. S.: Lancet **1**:805, 1906	6	1	4	1	..	..
Walker, I. J.: Boston M. & S. J. **173**:452, 1915	21	1	14	4	..	1 pleurisy 1 lung abscess
Richardson, E. P.: Boston M. & S. J. **176**:158 (Feb. 1) 1917	22	..	20	1	8	3 not noted
Alexander, E. G.: Ann. Surg. **66**:72 (July) 1917	7	..	7	..	..	..
Farr, C. E.: Ann. Surg. **72**:3 (Nov.) 1920	3	..	3	..	..	..
Winslow, Nathan: Ann. Surg. **74**:721 (Dec.) 1921	15	3	8	2	2	..
Itronada, Gebhard and Newman, S. S.: Surg. Gynec. Obst. **35**:11 (July) 1922	5	..	4	1	..	..
Gibson, C. L.: J. A. M. A. **91**: 1006 (Oct. 6) 1928	23	..	15	1	2	1 psychosis 1 cardiac 1 collapse 1 anesthetic
Dineen, P. H.: Ann. Surg. **90**: 1027 (Dec.) 1929	31	..	24	5	..	1 pulmonary embolus 1 liver abscess
Brown, H. P.: Ann. Surg. **89**: 209 (Feb.) 1929	33	2	24 all before 8th day	7	N.N.	..
Luff, A. P.: Brit. M. J. **2**: 1125 (Dec. 14) 1929	18	5(?)	5	1	..	7 not noted
Williams, H., and Walsh, C. H.: Lancet **1**:9 (Jan. 4) 1930	26	3	16	7	..	..
Paugger, H.: München. med. Wehnschr. **76**:158 (Sept. 6) 1929	16	..	13	..	..	3 not noted
Total	236	15 6.04%	157 67%	30 12%	12 5%	22 9.3%
Fleming (1931) total	17	4 23.5%	7 41.1%	3 17.6%	3 17.6%	
Grand total	253	19 7.5%	164 64.8%	33 13%	15 5.9%	22 8.06%

* From the Surgical Department, Division B, of the Jefferson Hospital.

1. Moynihan, B. G. A.: On Duodenal Ulcer and Its Surgical Treatment, Lancet **2**:1556-1663 (Dec 14) 1901.
2. Mayo, W. J.: Duodenal Ulcer, Ann. Surg. **40**:900 (Dec.) 1904.
3. Gibbon, J. H.: Ultimate Results of Operation for Gastric and Duodenal Ulcers, Ann. Surg. **92**:616-619 (Oct.) 1930.
4. Pool, Eugene; and Dineen, P. A.: Late Results of Gastro-Enterostomy for Gastric and Duodenal Ulcers, Including Acute Perforated Ulcers, Ann. Surg. **76**:457 (Oct.) 1922.
5. Moynihan, B. G. A.: Abdominal Operations, Philadelphia, W. B. Saunders Company **1**:238, 1926.
6. Deaver, J. B., and Pfeiffer, D. B.: Gastro-Enterostomy in Acute Perforated Ulcer of the Stomach and Duodenum, Ann. Surg. **73**:441 (April) 1921.
7. Gibson, C. L.: Acute Perforations of Stomach and Duodenum, J. A. M. A. **91**:1006-1008 (Oct. 6) 1928.
8. Cellan-Jones, C. J.: A Rapid Method of Treatment in Perforated Duodenal Ulcer, Brit. M. J. **1**:1076-1077 (June 15) 1929.
9. Caird, F. M.: Perforated Duodenal Ulcer—Collective Report of Two Hundred Cases, Edinburgh M. J. **11**:405, 1913.
10. Richardson, E. P.: Acute and Subacute Perforation of the Stomach and Duodenum at the Massachusetts General Hospital, Boston M. & S. J. **176**:158-165 (Feb. 1) 1917.

was later proved by Smith[11] experimentally, that fluid from the region of the duodenum drains first to the right kidney pouch, then to the right iliac fossa lateral to the colon, and thence to the pelvis. These surgeons emphasized the usefulness of a suprapubic drain. Many others have added favorable comment on its use, until now it is the only form of drainage generally advocated. Its usefulness has been given added emphasis by Williams and Walsh,[12] who have recently shown that a dye introduced into the upper part of the abdomen near the duodenum drains through a suprapubic rubber tube drain within a few minutes and continues to drain for thirty-six hours.

While these fundamental and well established facts may be well known, and while present practice is largely in keeping, the average mortality rate (23.6 per cent) from this calamity remains distressingly high.

The information collected and shown in table 1 comprises that from 236 deaths from acute duodenal perforation reported by thirteen different authors from rather widely scattered medical centers. It represents a total of 994 patients operated on. These particular reports were selected on the basis of the completeness of the information contained therein. Our own group is made up of reports from seventeen consecutive fatalities occurring in this hospital in twenty-eight years. When added to the collected groups it gives a total of 253 patients who died following operation.

ACUTE DIFFUSE PERITONITIS

Acute diffuse peritonitis stands out in bold relief as causing the greatest number of deaths; in fact, more than all other causes combined. Of these 253 fatal cases, 65 per cent were deaths from this cause. The series presented herein for the first time shows an incidence of 41.1 per cent. In the group reported by Brown[13] all deaths from peritonitis occurred before the eighth day. In our group all deaths from this cause occurred on or before the ninth postoperative day. Four of the seven deaths from peritonitis occurred in patients operated on less than five hours after perforation and whose ages ranged from 37 to 45 years. Yet this is in a group in which only 41.1 per cent of all deaths were due to peritonitis as compared to the average of 61 per cent. Other factors being equal, these patients represent the class that theoretically should have the best chance for recovery.

In this connection it is interesting to consider the fact that the presence of bacteria in the foreign material in the peritoneal cavity following perforation has not been stressed, and the impressions conveyed by the literature have rather emphasized its innocuousness. Results of cultures seemed to substantiate this impression until Brütt[14] (1926) reported cultures taken at operation from 112 patients. The intra-abdominal fluid in those operated on from six to twelve hours following perforation gave 74 per cent positive cultures. By the same technic 93 per cent positive cultures were secured from those coming to operation twelve hours or more following perforation. One must remember that while positive cultures prove beyond dispute the presence of bacteria, negative cultures do not necessarily prove their absence. *Streptococcus hemolyticus, Streptococcus viridans, Bacillus coli* and staphylococci were the organisms found.

With peritonitis as the chief cause of death and with pathogenic bacteria so frequently present in the intra-abdominal fluid following perforation, the need for the utmost care in postoperative treatment becomes strikingly apparent. The first eight postoperative days are the most dangerous ones from this complication.

PULMONARY COMPLICATIONS

In table 1 it will be seen that thirty-three deaths, or 13 per cent, from the entire group are attributed to pulmonary complications. It is to be regretted that more detailed information is lacking. However, two important inferences may be drawn. In our group it will be noticed that one pulmonary death attributed to atelectatic collapse occurred on the third postoperative day. Brown notes that three deaths in the series reported by him occurred with pulmonary complications on the third, fourth and eighth postoperative days, and, of the seven deaths attributed to pneumonia, three occurred during the first postoperative week. These early pulmonary deaths suggest very strongly lung atelectasis as the primary cause, particularly since they occurred before the time of our present knowledge of its significance in early postoperative pulmonary complications. Colp[15] has reported a fatality from this cause following perforation.

TABLE 2.—*Deaths from Generalized Peritonitis*

Case	Age	Time After Perforation	Day of Death After Operation	Drains
1	37	1½ hours	7th	One upper abdominal; one suprapubic
2	45	2½ hours	5th	None
3	42	4 hours	8th	One upper abdominal; one suprapubic
4	49	5 hours	7th	One right lower quadrant
5	63	14 hours	6th	One upper abdominal
6	52	18 hours	9th	One suprapubic
7	50	24 hours	3d	One right kidney pouch

TABLE 3.—*Deaths from Pulmonary Complications*

Case	Age	Time of Operation After Perforation	Day of Death After Operation	Drains	Diagnosis
1	49	21 hrs.	12th	1 to duodenum 1 suprapubic	Diffuse pneumonia
2	47	18 hrs.	9th	1 suprapubic 1 upper abdominal	Massive pneumonia
3	57	7 hrs.	3d	1 upper abdominal 1 lower abdominal	Lung atelectasis

It has been fairly well established by Coryllos[16] and others that pulmonary complications beginning within from twenty-four to forty-eight hours following abdominal operations are due to atelectasis; when pneumonitis develops it is a secondary process. Lahey[17] has shown that a definite elevation of the diaphragm on the right side occurs following operations on the upper part of the abdomen. He believes that this causes partial atelectasis of the lung immediately above the elevated diaphragm. Churchill[18] found a

11. Smith, M. S.: Perforated Ulcer of the Duodenum, Lancet **1**: 895, 1906.
12. Williams, H., and Walsh, C. H.: Treatment of Perforated Peptic Ulcer, Lancet **1**: 9-12 (Jan. 4) 1930.
13. Brown, H. P.: Perforation of Peptic Ulcer: Observation of One Hundred Cases at Pennsylvania and Presbyterian Hospitals, Ann. Surg. **89**: 209-217 (Feb.) 1929.
14. Brütt, H.: Bacteriologic Considerations of Excision of Perforated Gastric and Duodenal Ulcers, Beitr. z. klin. Chir. **138**: 601, 1926.
15. Colp, Ralph: Perforated Gastroduodenal Ulcers, New York State J. Med. **29**: 13-16 (Jan. 1) 1929.
16. Coryllos, P. N.: Postoperative Pulmonary Complications and Bronchial Obstruction, Surg. Gynec. Obst. **50**: 795-827 (May) 1930.
17. Lahey, F. H.: The Management of Some Complications Following Abdominal Operations, J. A. M. A. **89**: 1736 (Nov. 19) 1927.
18. Churchill, E. D., and McNeil, Donald: The Reduction in Vital Capacity Following Operation, Surg. Gynec. Obst. **44**: 483 (April, pt. 1) 1927.

reduction in vital capacity of from 50 to 75 per cent following operations involving the abdominal muscles.

The remaining pulmonary deaths on which information is available occurred during the second postoperative week. It is significant in this relation to notice that all patients reported as dying from subdiaphragmatic abscess in our series were shown at autopsy to have empyema and multiple lung abscesses as well. The possibility of septic emboli and the probability of direct extension from the subdiaphragmatic infection are factors of importance in the consideration of late pulmonary complications. It is well to recall

TABLE 4.—*Deaths from Subdiaphragmatic Abscess*

Case	Age	Time After Perforation, Hours	Day of Death After Operation	Drains	Autopsy Observations
A. B.	51	10	24th	1 to region of perforation	Subdiaphragmatic abscess; perforated diaphragm; empyema and lung abscesses; diaphragmatic peritonitis
H. S. J.	44	10	17th	1 to perforation	Subdiaphragmatic abscess; empyema; lung abscess right lower lobe
W. P.	73	19	26th	1 under liver	Subdiaphragmatic abscess; empyema; multiple lung abscesses

that the diaphragm is freely supplied by lymphatics which course under the peritoneal covering on both abdominal and pleural surfaces. They anastomose freely. It is possible for the lung to become attached to the diaphragm and thereby direct extension is facilitated. Graham [19] has emphasized the frequency with which empyema is associated with subdiaphragmatic abscess and the rarity with which subdiaphragmatic infection results from empyema.

SUBDIAPHRAGMATIC ABSCESS

Fifteen deaths from a total of 253, or an incidence of 5.09 per cent, are attributed to subdiaphragmatic abscess. The association of late pulmonary complications with this lesion suggests a still higher incidence in fatal cases not subjected to autopsy. Richardson drew attention to the fact that, in the series reported by him in 1917, 25 per cent of all fatalities were due to this complication. This is much higher than the average. In the same report he wrote that "drainage in the neighborhood of the perforation was almost universally used." In all cases in our series in which death resulted from this cause upper abdominal drains were used. In the two patients of this entire collected group who were found at autopsy to have perforation of the diaphragm, upper abdominal drains were used.

Subdiaphragmatic abscess occurs most often following perforated ulcers between the right lobe of the liver and the right side of the diaphragm posteriorally and extending to the right kidney. It is limited below by the transverse colon and the great omentum. Next in frequency is the location anterior to this between the liver and the diaphragm, limited laterally by the falciform ligament on the left and the transverse colon and the omenutm below, and occasionally anteriorally by the abdominal wall. These locations should be borne in mind in caring for the intra-abdominal foreign material.

Subdiaphragmatic abscess, from its location, is most inaccessible to the great scavenger of the abdomen, the great omentum. It is a more lethal lesion than abscess elsewhere in the abdominal cavity not localized in a vital organ. Its treatment in the scope of this paper lies largely in its prevention. Early recognition and treatment is briefly considered in a later paragraph.

19. Graham, E. A.: Surgical Diagnosis, Philadelphia, W. B. Saunders Company **3**: 358, 1930.

SHOCK

Nineteen deaths from a total of 253, or an incidence of 7.5 per cent, are attributed to shock in the reports herein abstracted. We have included under this heading those which failed to react from the anesthetic and operation. These certainly must be attributed to surgical shock. Luff's [20] series shows 28 per cent of the deaths attributed to shock and prostration. Winslow [21] reported 20 per cent in his series. When figures are available, as in the series mentioned and also in our own series, a higher incidence is noted. It is interesting that only one half of the reports from which the statistics are taken note shock as a cause of death. In our series three of the deaths attributed to shock occurred in patients coming to operation thirty hours or more following perforation, and this fact alone marks them as extreme surgical risks. Moynihan [5] believes that true surgical shock as indicated by low blood pressure, diminished blood volume, and rapid pulse is not present after perforation until generalized peritonitis has developed. The primary condition he believes to be one of extreme prostration. This distinction should not interfere, however, in the treatment indicated preparatory to operation.

Present methods of closing duodenal perforations are highly efficient. Early operation is of primary importance and has been repeatedly emphasized. The question naturally arises as to how the present high average mortality rate may be lowered. More accurate knowledge of the commonest causes of death indicates clearly the course for future endeavor. Attention must be directed to the preoperative preparation and to the postoperative treatment in keeping with present knowledge. Consideration of these vital factors in the treatment of this lesion is conspicuous by its absence from medical literature. A knowledge of the commonest complications that may prove fatal is essential to their prevention or early recognition and successful treatment. The surgical management of intra-abdominal foreign material is not being handled at present with uniform success.

TABLE 5.—*Deaths from Shock*

Case	Age	Time After Perforation	Time of Death After Operation
1.	33	5 hours	6 hours
2.	27	30 hours	3 hours
3.	47	48 hours	10 hours
4.	72	In extreme shock; no history obtainable	2 hours

NOTES ON TREATMENT

Shock.—Regardless of the theory as to the production of shock to which one subscribes, the pathologic changes are quite uniformly agreed on. It is generally accepted that there is fundamentally an increased permeability of the blood capillaries. The fluid portion of the blood is exuded into the surrounding tissues and the intravascular blood is increased in viscosity and decreased in volume. Lowered blood pressure results. There is an excess of blood cells in the

20. Luff, A. P.: Collective Investigation into After-History of Gastro Enterostomy, Brit. M. J. **2**: 1125 (Dec. 14) 1929.
21. Winslow, Nathan: Perforating Gastric and Duodenal Ulcer, Ann Surg. **74**: 721-739 (Dec.) 1921.

capillaries. The nonprotein nitrogenous elements of the blood are increased. The body tissues, especially those of the central nervous system, suffer from lack of water, food and oxygen. Oxidation is diminished and heat production lowered. This may lead to reduction in the alkali reserve and a state of acidosis.

The indications, therefore, are for (1) administration of fluids; (2) relief of pain to provide rest; (3) elevation of blood pressure; (4) elevation and conservation of body temperature; (5) treatment of the cause, and (6) the prevention of operative shock.

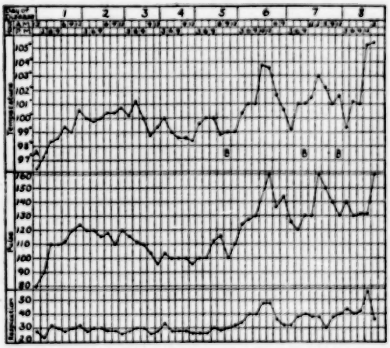


Chart 1.—Effect of enemas on temperature and pulse rate in a patient who died from generalized peritonitis following acute duodenal perforations: *A*, on admission after operation; *B*, soapsuds enema effective. The patient died at 4:05 a. m. on the eighth day.

Pain is best cared for by the administration of morphine hypodermically in moderate dosage. If true shock is established, large doses particularly are contraindicated. Blood pressure may best be raised by the administration of fluids. Physiologic solution of sodium chloride by continuous hypodermoclysis usually fulfils the requirements. If true shock exists, this may be supplemented by the intravenous administration of from 300 to 500 cc. of saline solution to which is added dextrose sufficient to make a 10 to 20 per cent solution. If these measures fail, blood transfusion should be performed. Body temperature should be conserved by ample protection in the form of woolen blankets and the use of external heat.

The prevention of operative shock is concerned with the proper selection of an anesthetic and care in its administration. Local infiltration of procaine hydrochloride, 0.5 per cent strength, to which epinephrine may be added, is the safest. Nitrous oxide and oxygen rank next in safety, provided sufficient oxygen is used to prevent cyanosis. This anesthetic may be used either to supplement procaine hydrochloride or alone. Ether is contraindicated when shock is already established. Rapid gentle operating, avoiding exposure of viscera, sponging, traction, unnecessary manipulation and hemorrhage, is important.

The treatment of shock from this lesion, unlike the treatment of shock from hemorrhage, indicates that the procedures as already outlined are to be carried out before direct treatment of the cause is undertaken. Before the abdomen is opened, the position of the patient to facilitate drainage from the subdiaphragmatic space seems to be the only means of influencing the factors at work. The reclining position on the right side is better than the Fowler position at this stage. The head should not be lowered even if shock is established. When operation is undertaken, closure of the perforation, removal of the foreign material, and institution of proper drainage further fulfil the requirements. The position of the patient at operation is important. The head, body and extremities should be in the same plane with the head end of the table elevated from 10 to 15 degrees.

What has been said does not imply that all cases of acute perforation need this most careful preoperative preparation. Prostration or shock is the indication.

Pulmonary Complications.—Beginning within twenty-four to forty-eight hours after operation pulmonary complications should at once suggest atelectasis, and painstaking examination should be made for its detection. The treatment comprises inhalation of 5 to 10 per cent carbon dioxide and oxygen for five minute periods every two hours. This lowers the viscosity of the bronchial secretion and facilitates expectoration. It likewise induces deep breathing and thereby aids in expanding the collapsed portion of the lung. Coryllos believes that it retards the growth of pneumococci. In addition to this, cough and expectoration should be induced, as suggested by Sante,[22] by turning the patient on his sound side several times daily. Clerf [23] believes that in the event that this form of treatment does not give prompt improvement, bronchoscopic drainage should be resorted to. In patients with alarming symptoms their response to this treatment is often most striking.

Foreign Material.—The intra-abdominal foreign material has been variously managed at operation. Irrigation of the abdominal cavity may be viewed as incorrect in principle and disappointing in practice. Upper abdominal drains, from all evidence available, often do actual harm. Klopp [24] believes their use should be reserved for patients coming to operation late and in whom localized suppuration has occurred. Suction, while correct in principle, is ineffective in practice. The suction tip is almost constantly clogged by omentum or some portion of the viscera. Care must

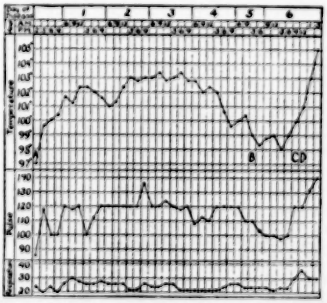


Chart 2.—Effect of enemas on temperature and pulse rate in a patient who died from generalized peritonitis following acute duodenal perforations: *A*, on admission after operation; *B*, triplex enema effective; *C*, by axilla; *D*, by rectum. The patient died at 3:30 a. m. on the sixth day.

22. Sante, L. R.: Massive (Atelectatic) Collapse of the Lung with Especial Reference to Treatment, J. A. M. A. **88**: 1539 (May 14) 1927.
23. Clerf, L. C.: Personal communication to the author.
24. Klopp, E. J.: Personal communication to the author.

be exercised to remove as much foreign material as possible, thereby reducing the dose of bacteria. Present knowledge indicates that the best means available are postural drainage, and absorption by carefully placed dry sponges. These sponges should be removed and replaced when they become saturated. Wiping should never be indulged in. Every care is exercised to preserve nature's barrier, the plastic lymph.

Unless the foreign material remains strictly localized in the upper part of the abdomen, suprapubic drainage by a rubber tube into the pelvis is very useful. If the

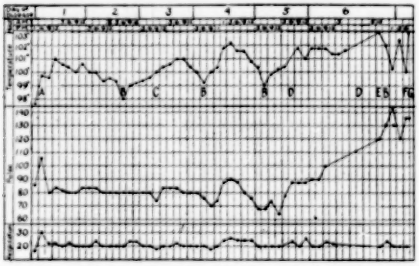


Chart 3.—Effect of enemas on temperature and pulse rate in a patient who died from generalized peritonitis following acute duodenal perforations: *A*, soapsuds enema effective after operation; *B*, triples enema effective; *C*, catheterization, 700 cc.; *D*, sleeping; *E*, axilla; *F*, asafetida enema; *G*, death.

intra-abdominal fluid is copious and widely disseminated, this drain should be placed before an attempt is made to close the perforation. Drainage therefrom greatly facilitates the procedure.

Subdiaphragmatic Abscess.—As pointed out, one's first effort aims at prevention. This lesion should always be sought in patients who, following operation, show improvement for several days or even weeks, after which they develop a remittent fever with pain in the abdomen, back, or lower part of the chest. The diagnosis is not simple in the early stages. Roentgen examinations and paracentesis are helpful. The treatment is surgical drainage by the transpleural approach, if possible. Abscess pointing anteriorally or low in the abdomen may be drained abdominally. The average mortality rate is approximately 70 per cent without surgical drainage and 30 per cent following its use.

Peritonitis.—The consideration of post-operative treatment necessitates a discussion of the treatment, prophylactic and actual, of acute septic peritonitis in keeping with established principles and modern knowledge. I am impressed, from personal experiences and from the evidence already presented, that the safest method of procedure is to consider every case one of generalized peritonitis until proved otherwise. When it becomes evident beyond reasonable doubt that intra-abdominal localization or resolution has taken place, one's method of treatment may be modified. Successful treatment designed to meet requirements calls for (1) absolute rest—bodily, abdominal and peristaltic; (2) maintenance of a fluid, food and salt balance; (3) the reduction or prevention of toxemia, and (4) drainage.

In these principles there is nothing new. Happily, present means of fulfilling them are more efficient. Rest should be secured in the Fowler position after postoperative reaction. Morphine may be used as a satisfactory analgesic and because it aids in securing peristaltic rest. Its use must be guarded, for, if vomiting is induced thereby, the much needed abdominal and peristaltic rest is sacrificed. Complete intestinal rest demands that absolutely nothing be allowed by mouth or by bowel. This fact is of the utmost importance and cannot be overemphasized. There is ample evidence to show that this principle, basic though it is, is more ignored than any other in the treatment of this lesion. One finds the following statements in the literature in referring to postoperative treatment: "A modified Sippy diet is given: if gastro-enterostomy is done in addition to closure, soft solids are added on the second postoperative day"; also "After two days patients are placed on a Lenhart diet." In a recent monograph dealing with acute surgical lesions of the abdomen, advice is given for the administration postoperatively of from 1 to 2 ounces of water by mouth every two hours following anesthetic nausea: "Albumin water is added every hour beginning in the second twenty-four hour period"; also "After the first twenty-four to forty-eight hour period an enema is used every second day. Turpentine enemas are added for distention." There can be no reasonable doubt that liquids or food by mouth stimulate peristalsis and thereby delay localization, disseminate bacteria, increase pain and delay healing. Frequently they induce or prolong vomiting.

The administration of fluid by bowel also increases peristalsis, though to a less degree and usually confined to the colon. Under some circumstances such administration may be used with relative safety; for example, when the peritoneal inoculation is confined strictly to the upper part of the abdomen or to the right side of the abdomen lateral to the ascending colon. Physiologic solution of sodium chloride is best for this purpose and usually most effectively given as small retention enemas of from 4 to 6 ounces introduced very slowly

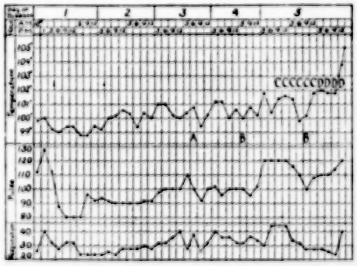


Chart 4.—Effect of enemas on temperature and pulse rate in a patient who died from generalized peritonitis following acute duodenal perforations: *A*, soapsuds enema; *B*, soapsuds enema effective; *C*, axilla; *D*, rectum. The patient died at 2:30 p. m. on the fifth day.

every three or four hours. When the intra-abdominal inoculation or infection is generalized, the rectal route should not be used. The cleanest, most accurate and certain method, because of variable absorption from the colon, is by hypodermoclysis. It may be given as a single daily dose or intermittently. From 1,500 to 4,000 cc. is needed in twenty-four hours. The fluid and salt balance may thereby be maintained and toxemia combated by the resulting increased elimination through the kidneys.

V 97
1931

The use of enemas designed to empty the bowel either of gas or of fecal contents has no place in the prophylactic or actual treatment of peritonitis. In fact, their use in this condition is pernicious and is exceeded only by the giving of purges in the same condition; the difference is merely one of degree. An enema is usually contraindicated following operation until the pulse and temperature have remained normal or nearly so for forty-eight hours or more, provided the abdomen remains soft and free of distention. Unmistakable evidence of intra-abdominal resolution or localization gives one the clue as to when an enema may safely be used. I am so impressed by the error of this practice and its frequent deadly effect that some temperature charts are presented to show more graphically their evil influence. These are drawn from old charts of patients who died of peritonitis from duodenal perforation and who were treated incorrectly in this respect. The behavior of the temperature and pulse following the administration of enemas as shown on these charts is mute evidence of their influence. The treatment of the patients in whom the postoperative course is charted thereon was otherwise correct in principle.

Abdominal distention may be troublesome. It is best treated by methods designed to prevent it. Ample fluid intake with peristaltic rest are examples. Continual warmth to the abdomen is helpful. The rectal tube is sometimes beneficial and it does no harm. Morphine for distention is contraindicated. If distention develops and leads to regurgitation or vomiting, or if the stomach becomes dilated, it is helpful to perform gastric drainage by means of the Rehfuss tube.

The food and fluid requirements of a patient may be taken care of in a most satisfactory way by the intravenous administration of dextrose solution. It is best given in 5 to 10 per cent solution in freshly distilled water by the intravenous drip method. From 0.4 to 0.8 Gm. per kilogram of body weight per hour may be used. Glycosuria should be avoided and is a guide for the rate of administration. If vomiting occurs and persists until ketonuria results, or if intestinal obstruction develops, intravenous dextrose with other treatment as indicated is frequently life saving.

SUMMARY

Reasons have been sought for the rather high rate of mortality following operations for acute perforation of duodenal ulcers. Information has been collected on 994 patients with 236 deaths from published reports of thirteen different authors. Detailed reports are given of seventeen similar fatalities occurring in the Jefferson Hospital during a period of twenty-eight years. Causes of all deaths of the entire fourteen groups are as follows: generalized peritonitis, 65 per cent; pulmonary complications, 13 per cent; shock, 7.5 per cent; subdiaphragmatic abscess, 5.09 per cent; all other causes, 8.06 per cent.

Leakage from perforation following its surgical closure is reported in only 2 patients in more than 1,000 operated on. Subdiaphragmatic abscess occurred with greater relative frequency when upper abdominal drains were used. Duodenal perforation usually, if not always, means peritoneal inoculation with pathogenic bacteria. Irrigation of the peritoneal cavity is incorrect and an obsolete procedure. Late pulmonary complications are closely associated with subdiaphragmatic infection. Early fatal pulmonary complications occur and should always suggest atelectasis. Notes on treatment are added, stressing preoperative preparation and postoperative care.

CONCLUSIONS

1. Present methods of closing duodenal perforations are efficient.

2. The most important single factor in successful treatment is early operation—a factor not always under the control of the surgeon.

3. A knowledge of the commonest complications causing death is essential to their prevention or early recognition and successful treatment.

4. The fact that acute diffuse peritonitis is the commonest fatal complication has not been sufficiently emphasized.

5. The use of enemas in the treatment of peritonitis is a pernicious practice. This fact also needs emphasis.

6. Opportunity is offered for a further reduction in the *average* mortality rate by:

(*a*) Better preoperative preparation of patients.

(*b*) Postoperative treatment rigidly in keeping with established principles for the treatment of acute generalized peritonitis.

(*c*) Efficient disposal of the intra-abdominal foreign material (not peritoneal exudate).

(*d*) Prompt and thorough search for lung atelectasis in patients developing early pulmonary complications with immediate institution of treatment when found.

(*e*) Early diagnosis and prompt treatment of subdiaphragmatic abscess and empyema as late complications.

(*f*) Restriction of the use of upper abdominal drains to patients coming to late operation and in whom localized suppuration has occurred.

Physicians Building.

THE PROBLEM OF ARSPHENAMINE-RESISTANT SYPHILIS

REPORT OF A CASE *

THOMAS H. MILLER, M.D.
DETROIT

An increasing number of cases of arsphenamine-resistant syphilis have been reported during recent years, the majority of these reports having appeared in the European literature. This may, of course, merely indicate a recent increase of interest in the subject abroad, but it is equally interpretable as evidence of an actual increase in the incidence of resistance to arsphenamine. Whether the relatively small number of reports in the American literature is an indication that these cases are seen here less frequently than in France and Germany or argues for a lesser interest in the subject is a matter for speculation.

ETIOLOGY

Great diversity of opinion is expressed as to whether the occurrence of arsphenamine-resistant syphilis is due to an alteration in the drug, a change in *Spirochaeta pallida* or some peculiarity of the host.

Most German authors agree, after submitting arsphenamine to biologic tests, that it is as efficacious as ever, and in the case reported here the drug was carefully examined and could not be incriminated.

* From the Department of Dermatology and Syphilology, University of Pennsylvania School of Medicine, John H. Stokes, M.D., director.

The development of arsphenamine-resistant strains of spirochetes has been accomplished experimentally although the results of all workers are not entirely consistent. Akatsu and Noguchi [1] were able to raise the tolerance of these organisms for arsphenamine to five and a half times the original mark within three to four months, and Klauder,[2] working with rabbits, developed a strain of spirochetes in which the therapeutically active dose of arsphenamine was raised 68 per cent, showing an actual resistance of the infecting organisms to the arsenical. On the other hand, Hoffmann and Armuzzi [3] and Nothaas,[4] approaching the problem from a different angle, found that rabbits inoculated with spirochetes which had been isolated from arsphenamine-resistant individuals made as good a response to treatment as did animals injected with other, recently isolated strains. This apparent inconsistency of results might be explained, theoretically, by assuming that in the case studied by Hoffmann and Armuzzi the resistance was in some manner dependent on the chemical make-up of the host and that it was not manifested when the organisms were transferred to another species. Such an assumption is supported by the statement of Miller [5] that when arsphenamine-resistant strains of spirochetes are developed in mice, the organisms lose this resistance if they are transferred to rats, and that they immediately regain it on reinoculation into mice. He concluded by saying that apparently the host or species of animal must play the primary rôle in creating this resistance.

Bonnet [6] was convinced that the development of strains of spirochetes resistant to arsphenamine is responsible, while Nicolas [7] was inclined to the same view although he stated that the present indictment of the organism was premature. Nicolas [8] later felt that the host might be the responsible factor and said that a conclusion might be reached by the study of individuals infected from a common source. Kloeppel's [9] case of conjugal syphilis in which both husband and wife showed refractoriness to treatment points toward the presence of a resistant organism. Similar examples have been reported by Nicolas,[7] but there are also cases, like that of Lutz,[10] in which one person showed resistance while the other made a satisfactory therapeutic response. At present such cases are too few and the results too conflicting to be of value.

Lee,[11] working with arsphenamized tissue extract, found that arsphenamine exerts its action on the spirochetes by combining with the cellular protein. This arsenoprotein starts retrograde changes in the parasites which render them susceptible to the protective powers of the body. Bearing in mind the statement of Miller [5] regarding the loss of resistance which spirochetes suffer when transferred to another species, it seems not impossible that individuals of the same species may vary in the chemical composition of their protein so that certain ones, the arsphenamine-resistant cases, form an arsenoprotein that is relatively innocuous to the invading organisms.

Jessner,[12] on the other hand, suggested that these individuals may metabolize arsphenamine in a different manner from normal persons and in this way reduce its efficiency. Further, the fact confirmed by the case reported here, that cases of arsphenamine-resistant syphilis frequently react badly to arsphenamine, is pointed out as indicative of such an altered metabolism.

Moore and Robinson [13] believe that lowered resistance to infection due to deprivations during the World War may be responsible for the apparent recent increase of arsphenamine-resistant syphilis in Germany; in the same vein, Orphanides [14] and Mouradian [15] feel that the reaction to arsphenamine is influenced by such factors as race, climate, diet, habits and nervous strain.

Obviously, the etiology of arsphenamine-resistant syphilis cannot be settled at the present time. The weight of opinion, however, tends to reject the drug and the spirochete and to regard the host as responsible although the exact part he plays is, as yet, an open question.

CLASSIFICATION

The question of what constitutes evidence of resistance to arsphenamine in a case of syphilis gives rise to a wide variation of opinion. Irreversibility of the Wassermann reaction of the blood is cited by some authors while others, as quoted by Guy,[16] imply that the general use of arsphenamine has produced a resistance of *Spirochaeta pallida* which is responsible for an increased incidence of neurosyphilis. Unsworth,[17] moreover, feels that the earlier onset of dementia paralytica in recent years is due to the promiscuous and unintelligent introduction of intravenous arsenicals. It should be pointed out that the shortening of the time of onset of neurosyphilis is in most cases probably due more to the "unintelligent introduction of intravenous arsenicals" than to the promiscuous and general use of arsphenamine per se. Frankl's [18] report adds strength to this view. He stated that the increase of tabes and dementia paralytica in Germany during the last decades is due to insufficient antisyphilitic treatment, neuropathic heredity, worries, infectious diseases and traumas, and that the use of arsphenamine is not responsible.

In the majority of cases of arsphenamine-resistant syphilis reported, there was either no response of primary or secondary lesions to the injection of arsphenamine (Gougerot,[19] Lutz [10] and Kloeppel [9]) or, after a partial involution, there was an excerbation of the eruption while the patient was still under treatment

1. Akatsu, S., and Noguchi, H.: The Drug Fastness of Spirochetes to Arsenic, Mercurial and Iodide Compounds in Vitro, J. Exper. Med. **25**: 349-362 (March) 1917.
2. Klauder, J. V.: The Experimental Production of an Arsenic Resistant Strain of Spirochaeta Pallida in Rabbits, Arch. Dermat. & Syph. **9**: 466-458 (April) 1924.
3. Hoffmann, Erich, and Armuzzi, G.: Experimentelle Untersuchungen über salvarsanresistente Syphilisspirochäten, Deutsche med. Wchnschr. **53**: 51 (Jan. 7) 1927.
4. Nothaas, R.: Experimentelle Untersuchungen über salvarsanresistente Lues, München. med. Wchnschr. **74**: 761 (May 6) 1927.
5. Miller, J. L.: The Present Status of Nonspecific Therapy, J. A. M. A. **95**: 464-468 (Aug. 16) 1930.
6. Bonnet, L. M.: Actual Frequency of Arsenoresistant Syphilis, Lyon méd. **140**: 229-236 (Sept. 4) 1927.
7. Nicolas, J.; Massia, G., and Lacassagne, Jean: Increasing Frequency of Arsenic Resistant Syphilis in the Neighborhood of Lyons, Bull. Soc. franç. de dermat. et syph. **35**: 132-138 (Feb.) 1928.
8. Nicolas, J.; Lacassagne, Jean; and Froment, Roger: Novarsenobenzol-Resisting syphilis, Presse méd. **38**: 513 (April 13) 1930.
9. Kloeppel, F. W.: Salvarsanresistenter Spirochätenstamm bei einem Ehepaar, München. med. Wchnschr. **73**: 1936-1937 (Nov. 12) 1926.
10. Lutz, W.: Syphilis Refractory to Arsphenamine, Schweiz. med. Wchnschr. **50**: 838 (Sept. 1st) 1920.
11. Lee, D. C.: A Contribution to the Action of Arsphenamine and Mercury on the Treponema Pallidum, Am. J. Syph. **6**: 546-550 (July) 1922.
12. Jessner, M.: Ueber salvarsanresistente Lues, Med. Klin. **19**: 857-859 (June 24) 1923.
13. Moore, J. E., and Robinson, H. M.: The Question of Arsphenamine-Resistant Syphilis, Arch. Dermat. & Syph. **21**: 32-39 (Jan.) 1930.
14. Orphanides, E.: Resistance to Arsphenamine in Different Races, Ann. d. mal. vén. **19**: 510-513 (July) 1924.
15. Mouradian, H.: La grande résistance des Arméniens vis-à-vis des novarsenobenzenes, Ann. d. mal. vén. **19**: 196-206 (March) 1924.
16. Guy, W. H.: Controversies Regarding Syphilis, J. A. M. A. **95**: 979-982 (Oct. 4) 1930.
17. Unsworth, H. R.: Malarial Therapy in Dementia Paralytica, J. A. M. A. **95**: 772-774 (Sept. 13) 1930.
18. Frankl, Samuel: Influence of Therapeutic Measures on Occurrence of Tabes and Dementia Paralytica, München. med. Wchnschr. **77**: 1879 (Oct. 31) 1930.
19. Gougerot, H., and Fernet, P.: A Case of Syphilis Resistant to Arsphenamine Treatment but Presenting Exacerbation of Eruption After Each Injection; Recovery Due to Bismuth, Ann. d. mal. vén. **19**: 502-505 (July) 1924.

(May [20] and Semon [21]). Sayer,[22] Gougerot [23] and Siemens [24] described cases in which there was complete healing of all lesions under arsphenamine therapy with the appearance of recurrent eruptions either after a rest period or while the patient was still receiving treatment. Gougerot [25] classified the latter cases as "arsenic-recurrent" in contradistinction to those in which the lesions did not entirely involute, which he called the "arsenic-resistant" cases. The issue seems of minor importance, since in all instances the infection failed to respond satisfactorily to a system of treatment which in the vast majority of cases had proved adequate. A fatal case of malignant syphilis reported by Wile, Wieder and Warthin [26] showed a marked resistance to arsenical treatment, old lesions progressing and new ones appearing while the patient was being treated. Pathologic examination, however, revealed that the ulcerative lesions were anemic infarctions of the corium and epidermis, due to thrombosis of the cutaneous vessels, secondary to syphilitic obliteration. *Spirochaeta pallida* was not found in the lesions, and the actual effectiveness of the arsenical treatment was evidenced by the enormous number of degenerating organisms in the tissues central to the syphilitic vascular process.

The most indisputable criterion of resistance to arsphenamine is the persistence of spirochetes in the lesions after arsphenamine has been given, and it is one of which few authors make mention. The normal time of disappearance of the organisms is generally considered to be twenty-four hours after the injection of neoarsphenamine (Katz [27] and Riebes [28]), and their persistence for longer periods is considered an indication of either the impotence of the drug or an increased resistance of the spirochetes. Kitchevatz,[29] after repeated and intensive search, reported several cases in which spirochetes were demonstrated by dark-field examination after from one to four days, and he found that the disappearance of the organisms did not always parallel the clinical healing of the chancre. At this point, the importance of using an arsenical of proved merit should be stressed, as not infrequently the drug (particularly neoarsphenamine) is not as effective spirillicidally as its label would denote. After submitting various brands of arsphenamine and neoarsphenamine to a trypanocidal test, Voegtlin and Miller [30] found that arsphenamine of different manufacture was fairly uniform in parasiticidal power, whereas neoarsphenamine displayed marked variations. Kitchevatz [29] further urged repeated and prolonged dark-field examination after treatment is begun. He believed that in this way resistance to arsphenamine can be recognized earlier and treatment can be correspondingly modified. Levy [31] found that in sixteen cases of primary syphilis yielding positive results in dark-field examination the spirochetes had disappeared from the lesions in from twenty-four to forty-eight hours, in fourteen instances with an average time of disappearance of thirty-four hours. In two cases a second injection was required. He did not state how many dark-field examinations giving negative results were made before a given lesion was considered free from organisms. After reviewing the literature, Kitchevatz [32] described what seems at present to be the most satisfactory classification of these cases on the basis of three criteria of resistance to arsphenamine: the clinical criterion (persistence of lesions), the serologic criterion (a persistently positive Wassermann reaction of the blood) and the parasitologic criterion (persistence of spirochetes).

PREVALENCE

Many cases of syphilis that failed to show the usual response to arsenical therapy have been reported, but in few instances have the surveys been sufficiently comprehensive to admit of any general conclusions. Bonnet [6] and Nicolas [7] described cases in which "precocious recidives" and secondary eruptions appeared during treatment with arsphenamine as evidence of an increase of this type of case in France. Three additional cases were cited by Lortat-Jacob and Roberti,[33] and Nicolas and Lacassagne [34] stated that since 1927 an appreciable increase in the number of such cases has been noticeable in Lyon. The most valuable contribution is perhaps that of Silberstein,[35] who feels that there is an increase in the number of cases which are uninfluenced by arsphenamine or which show an early involution of lesions followed later by a progression and exacerbation of the eruption under treatment. He collected thirty-nine cases from the literature as illustrations and emphasized the fact that in many clinics it has been necessary to give more intensive antisyphilitic treatment from year to year. Nathan [36] agreed with Silberstein that syphilitic manifestations do not yield as promptly to arsphenamine as they formerly did and that consequently it has been necessary to increase the dosage and to shorten the rest periods.

Regarding the reversibility of the Wassermann reaction of the blood, Silberstein,[35] gathering statistics from Scholtz's clinic, found that the percentage of negative reactions was much lower during recent years than formerly. He reported that during the period from 1911 to 1916 the Wassermann reaction became negative after treatment in 85 per cent of cases, while for the year 1921-1922 only 23.3 per cent became negative. The treatment during the two periods was essentially the same. In this country Moore and Robinson [13] made a similar study of cases treated at the Johns Hopkins Clinic and found that there were a small number of arsphenamine-resistant cases of syphilis scattered over the entire period from 1914 to 1929 and that examples of secondary relapse were no more frequent from 1925 to 1927 than from 1914 to 1923. They also stated that in this clinic there was no significant difference in serologic results during the period from 1914 to 1923 as compared with the period from 1925 to 1927, and concluded that there has been no increase in

20. May, J.: Primary Syphilis Refractory to Arsenicals, Rev. med. del Uruguay **28**: 26-35 (Jan.) 1923.
21. Semon, C. G.: A Case of Salvarsan Resistant Syphilis, Brit. J. Ven. Dis. **6**: 323, 1930.
22. Sayer, A.: New York M. J. **114**: 513 (Nov. 2) 1921.
23. Gougerot, Burnier, Ragu and Weill: The Recurrence of Syphilis After Arsenic Treatment, Ann. mal. vén. **25**: 321 (May) 1930.
24. Siemens, H. W.: München. med. Wchnschr. **68**: 1419 (Nov. 4) 1921.
25. Gougerot, H.: Arsenic-Resistant and Arsenic-Recurrent Cases of Syphilis, Rev. gén. de clin. et de therap. **44**: 593 (Sept. 13) 1930.
26. Wile, U. J.; Wieder, L., and Warthin, A. S.: Malignant Syphilis, Am. J. Syph. **14**: 1-34 (Jan.) 1930.
27. Katz, T.: Ueber intravenose Injectionen von konzentriertem Neosalvarsan, München. med. Wchnschr. **60**: 2337 (Oct.) 1913.
28. Riebes, E.: Ueber die Verarbeitung des Salvarsans und Neosalvarsans im Organismus, Arch. f. Dermat. u. Syph. **118**: 757-771, 1914.
29. Kitchevatz, Milan: A Search for Treponema in the Chancre During Course of Specific Treatment, Ann. de dermat. et syph. **8**: 473-484 (Aug.-Sept.) 1927.
30. Voegtlin, C., and Miller, D. W.: The Relative Value of Arsphenamine and Neoarsphenamine, Pub. Health Rep. **37**: 1627-1641 (July 7) 1922.
31. Levy, G.: Researches in the Spirocheticidal Action of Bismuth Salts and Arsphenamines, Bull. Soc. franç. de dermat. et syph., June, 1930; abstr., J. Chemotherapy **7**: 122 (Jan.) 1931.
32. Kitchevatz, Milan: Refractory Syphilis, Ann. d. mal. vén. **21**: 184-191 (March) 1926.
33. Lortat-Jacob, L., and Roberti, J.: The Therapeutic Effect of Bismuth in Early Syphilis, Bull. Soc. franç. de dermat. et syph., June, 1930; abstr., J. Chemotherapy **7**: 124 (Jan.) 1931.
34. Nicolas, J., and Lacassagne, J.: Arsenoresistance and Bismuth Therapy, Bull. Soc. franç. de dermat. et syph., June, 1930; abstr. J. Chemotherapy **7**: 124 (Jan.) 1931.
35. Silberstein, S.: Zur Frage der salvarsanresistenten Lues, Arch. f. Dermat. u. Syph. **147**: 116-130, 1924.
36. Nathan, Ernst: Ueber salvarsanresistente Syphilis, Klin. Wchnschr. **6**: 2147 (Nov. 5) 1927; 2194 (Nov. 12) 1927.

the incidence of arsphenamine-resistant syphilis, at least in the vicinity of Baltimore.

REPORT OF CASE

A boy, aged 17 years, when first seen, May 5, 1927, was well developed and gave no evidence of either constitutional weakness or acute illness. The general physical examination gave negative results except for moderate enlargement of the tonsils, which were chronically infected. The skin and mucous membranes were clear and there was no generalized adenopathy. No abnormalities of the cardiovascular system were noted. The aortic second was about equal to the pulmonary second sound. The liver and spleen were not palpable and the results of neurologic examination were entirely negative.

The patient complained of a penile lesion which had first been noted two days previously. On examination, it proved to be an erosion extending for about 3 mm. along the left border of the meatal orifice. It was clean and displayed no marked induration. A slight pellicle was scraped off. There was an associated bilateral inguinal adenopathy, the glands being about the size of navy beans, discrete and not tender. A dark-field examination of the lesion disclosed from two to three spirochetes to each high power field. The Wassermann reaction of the blood at this time was reported as Kolmer-Wassermann 00, Kahn 012. Urinalysis showed: specific gravity, 1.026; albumin, none; sugar, none (Benedict test).

Subsequent treatment with arsphenamine given intravenously was as follows:

Date	Gm.	
5/5	0.3	No untoward reaction
5/7	0.4	Penile lesion involuting; one inguinal gland reduced
5/11	0.4	Penile lesion almost healed; 2 or 3 pruritic papules present that look urticarial; no signs of dermatitis
5/18	0.4	
5/25	0.4	No reactions to date
6/1	0.45	Grade 2 nitritoid reaction
6/8	0.3	Nitritoid reaction in spite of atropine sulphate, 1/75 grain (0.8 mg.); Beredka technic of administration

At this time examination of the original lesion showed a red plaque, about 1.5 cm. in diameter, at the site of the original lesion. The plaque was beefy, dry and indurated and there was one minute satellite. It was not painful or eroded and there was no ulcer. In the left groin were three glands somewhat larger than an almond. The glands were not adherent or tender and there was no associated lymphangitis. Dark-field examination revealed organisms so motile that *Spirochaeta refringens* was suspected. However, when the dark-field examination was repeated on material obtained by gland aspiration, three typical *Spirochaeta pallida* organisms were seen. The gland was then excised and the emulsion, showing from three to four spirochetes to every five dark-field examinations, was inoculated into the testes of a rabbit with the assistance of J. E. Kemp. Unfortunately the rabbit died of an intercurrent infection before the spirochetes had established themselves, and the strain was lost.

Further treatment of the patient consisted of weekly intramuscular injections of sulpharsphenamine alternated with intramuscular injections of potassium bismuth tartrate. The first injection of sulpharsphenamine was given, June 13, and on June 15 repeated dark-field examination of the lesion, which appeared to be involuting, gave negative results. From June 13 to August 12 the patient received a total of 5.6 Gm. of sulpharsphenamine at weekly intervals in addition to a weekly injection of bismuth to a total of 1.8 Gm.

The stitches were removed from the inguinal incision on June 18. There was good union and the penile lesion was involuting. On June 22, four days after the second injection of sulpharsphenamine, the lesion had entirely healed and there was practically no induration.

The Wassermann reactions of the blood during this period were:

Date	Kolmer-Wassermann	Kahn	
5/5	00	012	On admission
5/7	00	001	Following first injection of arsphenamine
6/13	44	233	Positive dark-field observations on penile lesion
7/27	00	000	

Samples of arsphenamine from the same lot as that administered to the patient were submitted to the manufacturers and to the Hygienic Laboratory of the United States Public Health Service for analysis. In each case the drug was reported to be trypanocidally active to a somewhat higher degree than that required by the United States Public Health Service.

COMMENT

From the beginning of treatment the case of arsphenamine-resistant syphilis reported showed an abnormal degree of reactivity as regards the vascular system. This was manifested first as urticaria and later by typical nitritoid reactions. Such a reaction is not infrequent in these cases and may be indicative of some constitutional peculiarity which prevents the patient from rallying to his own defense against the infection. The initial negative Wassermann reaction of the blood which later became strongly positive and then immediately negative is further suggestive of a lack of resistance on the part of the patient, as pointed out by Moore and Kemp.[37] The one positive Wassermann reaction of the blood was reported when the exacerbation of the primary lesion was at its height. At this time, the number of spirochetes seen by dark-field examination of material obtained from the chancre and from the inguinal gland was about the same as at the first examination.

Three separate lots of arsphenamine were used in treatment and caused an initial, partial involution of the chancre which was followed by an increase in size and by the finding of active *Spirochaeta pallida* on dark-field examination. The drug was carefully examined and was found to be active by the conventional tests. Several different lots had been used. The infection later responded to sulpharsphenamine and bismuth given intramuscularly, showing that the resistance was to arsphenamine alone.

SUMMARY

1. A case of primary syphilis resistant to arsphenamine is reported. The lesion healed after sulpharsphenamine and bismuth were given intramuscularly.

2. The arsphenamine was carefully tested and proved to be trypanocidally active to a somewhat higher degree than that required by the United States Public Health Service.

3. From the beginning, the patient showed a vascular instability and reacted badly to arsphenamine.

4. The consensus at present holds the individual as the responsible etiologic factor in resistance to arsphenamine, although the mechanism of such resistance has not been settled.

5. Arsphenamine-resistant syphilis may manifest itself in one or all of three ways: in the persistence of syphilitic lesions; in a persistently positive Wassermann reaction of the blood or in the persistence of *Spirochaeta pallida* in the lesions while the patient is under what, in the majority of cases, is considered adequate arsphenamine therapy.

6. According to reported cases, there is an apparent increase of arsphenamine-resistant syphilis in France and Germany.

7. No such increase is evident in the United States, at least in the vicinity of Philadelphia and Baltimore, and the small number of reported cases would suggest that this is true of the country as a whole.

1510 Eaton Tower.

37. Moore, J. E., and Kemp, J. E.: The Treatment of Early Syphilis: III. The Wassermann Reaction in Treated Early Syphilis, Bull. Johns Hopkins Hosp. **39**: 36 (July) 1926.

V 97
1931

COMPARATIVE STUDIES ON CALCIUM GLUCONATE AND OTHER CALCIUM SALTS *

ARNOLD L. LIEBERMAN, M.D.
GARY, IND.

About two years ago, Professor Luckhardt asked me to observe the comparative pharmacologic effects following the intravenous injection of calcium lactate and calcium gluconate in unanesthetized dogs. The methods were, briefly, an exposure of the carotid vessels under ether anesthesia, recovery of the dogs from the immediate effects of the operation, and an injection of the salts in question while the animals were awake. Blood pressure tracings, pulse, and respiratory readings were made then over a period of from thirty minutes to one and a half hours. The full details of this series appeared elsewhere,[1] so that it is necessary here only to summarize the results. Charts 1 and 2 show concisely the elevation of the blood pressure with the simultaneous pulse retardation. Also, the relatively evanescent effects of the lactate salt as compared to the gluconate stands out strikingly. Digitalis effects were quite noticeable. Recognizable heart block, arrhythmias, coupling of beats, and other digitalis-poisoning effects

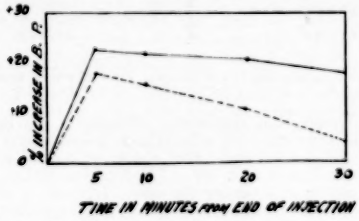


Chart 1.—Average of series of eight determinations: solid line, gluconate; broken line, lactate.

were induced repeatedly. Here, again, the gluconate salt was somewhat slower in producing these results as compared with the lactate compound, but, once produced, they tended to persist a much longer time. They would appear as soon as five minutes after the intravenous administration of the calcium salt and would persist sometimes an hour or more. Billigheimer [2] had previously noted the digitalis effects of calcium which, to me, appear to be well worth further study. Also, emphasis was placed on the danger of intravenous calcium therapy; sudden clotting was noted several times as a result of the well known but frequently forgotten tendency of calcium to increase the coagulability of the blood.

Before proceeding to the study of further cardiac effects of calcium, it was thought advisable to make some detailed observations on the best methods of administering calcium salts. Some of the results already obtained appear to be of immediate practical interest. The changes in the calcium levels of the blood and urine are especially commented on here.

Calcium gluconate can be given subcutaneously in repeated and adequate amounts (parathyroidectomized dogs being kept alive in this fashion [3]) without causing the irritation and necrosis that other calcium salts do when so injected. Szentei [4] was able to report decreased postpartum hemorrhage by using this compound. That this procedure will promptly elevate the blood calcium was conclusively shown in normal and parathyroidectomized dogs.[5]

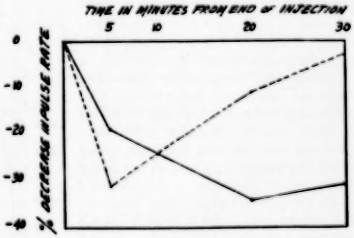


Chart 2.—Average of series of eight determinations: solid line, gluconate; broken line, lactate.

There has been some confusion in the literature as to the proper time of giving calcium compounds when administered orally. Thus, Roe and Kahn [6] showed definitely that large amounts of calcium lactate, when given intimately mixed with food, failed to cause a rise in blood calcium. On these grounds they advocate giving the calcium on an empty stomach. In some studies on urine I [7] came to the conclusion that the amount of intestinal absorption depended to a decisive extent on the length of time the calcium compounds were permitted to stay in the bowel. When given on an empty stomach there appeared to be a marked tendency for the production of diarrhea with its attendant phenomena. As food tended to minimize this hydra-

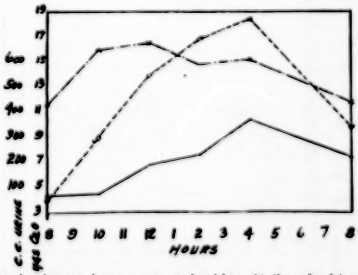


Chart 3.—Average in ten cases; no breakfast; 10 Gm. of calcium gluconate by mouth: solid line, urine volume; broken line with circles, urine calcium; line of dots and dashes with crosses, blood calcium.

gogue salt action of the calcium compounds, it seemed that giving it after a meal would cause greater absorption and less distress.

* Work done on grant from the Sandoz Fund.
* From the Hull Physiological Laboratories of the University of Chicago.
* Read before the Section on Pharmacology and Therapeutics at the Eighty-Second Annual Session of the American Medical Association, Philadelphia, June 10, 1931.

1. Lieberman, A. L.: J. Pharmacol. & Exper. Therap. **50**: 63 (Sept.) 1930.
2. Billigheimer, E.: Klin. Wchnschr. **8**: 724 (April 16) 1929.
3. Lieberman, A. L., and Szurek, S. A.: J. Pharmacol. & Exper. Therap. **51**: 333 (March) 1931.
4. Szentei, S.: Zentralbl. f. Gynäk. **53**: 1828 (July 20) 1929.
5. Lieberman, A. L.: J. Pharmacol. & Exper. Therap., to be published.
6. Roe, J. H., and Kahn, B. S.: Absorption of Calcium from the Intestinal Tract of Human Subjects, J. A. M. A. **88**: 980 (March 26) 1927.
7. Lieberman, A. L.: J. Pharmacol. & Exper. Therap. **50**: 71 (Sept.) 1930.

To settle the point, about thirty individuals were taken and submitted to procedures described in detail elsewhere.[8] The blood and urine calcium changes were traced preceding and following the administration of calcium gluconate as follows: Ten received 10 Gm. orally on an empty stomach; ten received 10 Gm. after a standard breakfast; five had 20 cc. of the 10 per cent solution[9] injected deep in the buttocks while receiving no food; five others had a similar injection following a standard breakfast. Charts 3, 4, 5 and 6 show in summary form the results obtained. Charts 3 and 4 seem to show that calcium gluconate is absorbed a trifle better and gives more persistent elevation of the blood and urinary calcium when given after a meal. Subjectively there was an immense difference: the patients had no complaints to speak of when the compound was given after breakfast, while there was a very definite diarrheal tendency when they received the calcium on an empty stomach. With severe diarrhea there appears to be no blood calcium elevation of any moment, the medication being rushed through and out of the bowel before being given a chance to absorb.[5]

As can be seen, the blood calcium reached its maximum about the fourth hour after oral administration. Intramuscular injection gives the peak within the first hour. This is of practical importance when speed of action is desired. It seems hardly worth while to take a chance on sudden death and give the calcium intravenously when an intramuscular injection will attain the same end in so short a time and without any risk.

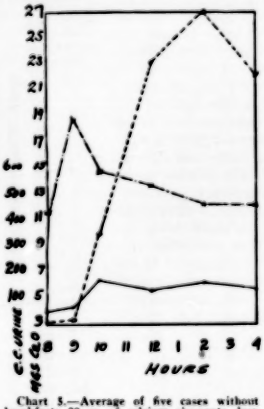


Chart 5.—Average of five cases without breakfast; 20 cc. of calcium gluconate deep in muscles: lines as in chart 3.

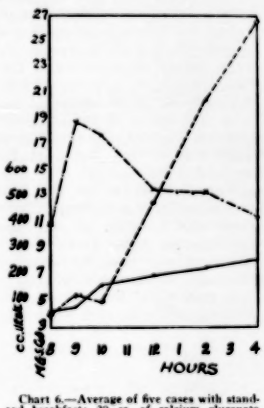


Chart 6.—Average of five cases with standard breakfast; 20 cc. of calcium gluconate deep in muscles: lines as in chart 3.

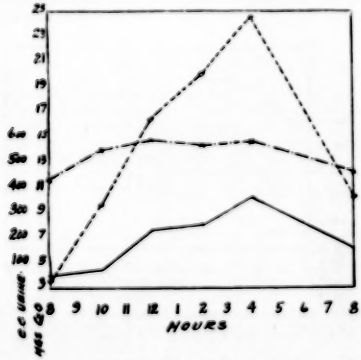


Chart 4.—Average of ten cases; 10 Gm. of calcium gluconate by mouth after standard breakfast: lines as in chart 3.

On further inspection of the urine calcium curves, it will be noted that there is a lag in the rise of the calcium here as compared with the blood level. However, even if there is no quantitative relationship between blood and urine calcium, there appears to be a distinct qualitative correlation. As long as the hourly output of urine in the individual is above, say, 10 mg. of calcium an hour, there is little danger of that individual developing hypocalcemia with its attendant symptoms. Conversely, the continued output of, say, 30 to 40 mg. an hour would be quite clear evidence of a state of hypercalcemia which will lead to its typical signs and symptoms if continued. Because of this factor of lag, however, a low urine calcium followed by a rise some four to six hours after a dose of calcium would be an indication of a fall in blood calcium and of the advisability of repeating the dose. In cases in which parathyroid extract is being given, post thyroidectomy or in infants with tetany, this should be of practical importance. It is certainly much easier to take a specimen of urine than to take a sample of blood.

As regards dosage of calcium gluconate when being given by mouth: After perusing the charts it seems fair to say that 10 Gm. of the powder when split into, say, three doses and given about half an hour after meals should be sufficient to maintain an adequate calcium level without at the same time tending to produce a hypercalcemia.

SUMMARY AND CONCLUSIONS

1. Calcium gluconate was taken as a most convenient representative calcium salt and studied as to dosage and effects on human beings and dogs when given orally, subcutaneously and intravenously.

2. This compound can be given in repeated and adequate amounts subcutaneously without causing either irritation or necrosis.

3. Three or four grams a day after meals appears to be about the right dose for an adult.

4. Blood calcium attains its maximum elevation within an hour after subcutaneous or intramuscular administration of calcium and within four hours after being given orally.

5. Intravenous calcium therapy is dangerous because of the menace of sudden intravascular clotting and death.

6. Urinary calcium appears to be a qualitative index of the state of the blood calcium level. Whether this

8. Lieberman, A. L.: Studies in Calcium, J. Pharmacol. & Exper. Therap., to be published.
9. Calcium gluconate-Sandoz, N. N. R., 1931.

V 9
193

is true in all pathologic conditions remains to be seen. A urinary value of about 10 to 20 mg. an hour appears to be most desirable in avoiding either a hypercalcemia or a hypocalcemia.

7. Highly suggestive digitalis-like effects of calcium were observed and the need for further investigation of this phase of the problem is noted.

STUDIES IN THROMBO-ANGIITIS OBLITERANS (BUERGER)

VIII. EFFECT OF THYROID ADMINISTRATION ON BLOOD VOLUME *

SAMUEL SILBERT, M.D.
AND
MAE FRIEDLANDER, PH.D.
NEW YORK

During the past two years our investigations have shown that patients with thrombo-angiitis obliterans have a low blood volume [1] and a low basal metabolism.[2] In a paper published in 1926, Thompson [3] stated that the blood volume in cases of myxedema was low and that by administration of thyroid the blood volume could be brought up to normal. A similar observation is recorded by Wislicki.[4] In order to determine whether a similar increase in blood volume could be produced in thrombo-angiitis obliterans by the use of thyroid, we selected a group of fourteen cases for this study. An analysis of the data published by Thompson suggested that the changes he noted were more striking in men than in women patients, although he does not mention this fact. Since we have had no women patients with thrombo-angiitis obliterans, we were unable to investigate this important point.

MATERIAL AND METHODS

The patients investigated presented typical cases of thrombo-angiitis obliterans and were selected from the group who are under treatment in the special clinic for this disease in the outpatient department of the Mount Sinai Hospital. Fourteen cases were studied, all occurring in men, the ages ranging from 25 to 40 years.

Basal metabolism and determinations of blood volume were made about every four weeks for a period of six months or longer. In addition, a complete chemical study of the blood was made with each determination of the blood volume in order to check up any changes noted. Careful clinical observations were made, including measurement of the circulation in the lower extremities by means of the oscillometer.

The methods used for blood volume,[1] basal metabolism,[2] and chemistry [5] determinations have been described in previous publications dealing with these matters. The dosage of thyroid extract was usually either 1 or 2 grains (from 0.6 to 1.2 Gm.) three times a day.

DATA OBTAINED

Of the fourteen cases studied, five have been selected for complete publication, as they are typical of all the rest:

REPORT OF CASES

CASE 1.—E. M., aged 39, had a typical case of thrombo-angiitis obliterans, presenting a history of pain in the right foot for five years. He developed extensive ulceration of the right foot a year previous, and the ulcer was unhealed at the beginning of the experiment. The patient was kept on a dosage of 2 grains (1.2 Gm.) of thyroid extract three times a day from Feb. 24, 1930, to July 30, 1930, a period of five months. The results of examinations are shown in table 1.

TABLE 1.—*Results of Determination of Blood Volume in Case 1*

Date	Weight, Pounds	Total Thyroid* per Day, Grains	Blood Volume per Kg. Cc.	Total Ash in Plasma, Gm. per 100 Cc.	Total Protein in Blood, Gm. per 100 Cc.	Calcium in Serum, Mg. per 100 Cc.	Phosphorus in Serum, Mg. per 100 Cc.	Chloride in Plasma, Mg. per 100 Cc.	Cholesterol in Plasma, Mg. per 100 Cc.	Basal Metabolism
2/24/30	142	0	69.8	...	23.75	12.4	2.5	58.5	220	—11
3/10/30	144	6	94.0	...	23.3	11.4	2.2	55.0	145	— 9
3/31/30	145	6	90.7	...	18.75	12.0	2.0	48.0	180	....
5/ 2/30	149	6	93.0	1.2	22.5	11.0	2.6	53.0	150	—16
6/ 6/30	151	6	78.0	1.0	23.75	10.3	2.7	52.6	210	—15
7/30/30	154	6	73.0	...	23.75	12.0	2.5	55.0	240	....
8/29/30	160	0	65.0	1.2	23.75	12.5	1.9	56.0	270	—16

*In each instance the dose of thyroid indicated is the total daily dose taken by the patient in the period preceding the date of examination.

This case is interesting because the dosage of thyroid extract was unchanged. It illustrates the striking rise of blood volume from 69.4 to 94 cc. per kilogram and the gradual fall while on the same dose of thyroid to 73 cc. per kilogram. On withdrawal of the thyroid the blood volume returned to below its first figure. The total protein and cholesterol figures show a fall as the blood volume increases, and then a return to higher figures as the blood volume diminishes. A similar change is noted in the calcium figures but is more marked in other cases. When the drug is stopped, the high total protein, calcium and cholesterol figures characteristic of thrombo-angiitis obliterans are again obtained. The basal metabolism determinations remained consistently below normal in spite of the thyroid given. In this experiment no effort was made to bring the basal metabolism up to normal figures.

TABLE 2.—*Results of Examination in Case 2*

Date	Weight, Pounds	Total Thyroid per Day, Grains	Blood Volume per Kg. Cc.	Total Ash in Plasma, Gm. per 100 Cc.	Total Protein in Blood, Gm. per 100 Cc.	Calcium in Serum, Mg. per 100 Cc.	Phosphorus in Serum, Mg. per 100 Cc.	Chloride in Plasma, Mg. per 100 Cc.	Cholesterol in Plasma, Mg. per 100 Cc.	Basal Metabolism
2/22/30	160	0	62.4	1.0	24.0	12.0	...	58.5	210	....
3/ 8/30	161	6	84.4	...	25.0	13.0	2.2	52.6	125	—14
3/22/30	159	6	88.5	...	....	12.5	1.7	....	210	....
4/18/30	162	3	81.4	1.5	....	12.5	1.7	....	165	—10
5/16/30	161	3	80.0	1.2	20.0	11.4	1.8	46.8	165	—12
6/20/30	160	3	78.8	1.2	20.0	12.0	1.7	46.8	165	—13
8/ 1/30	162	3	85.0	1.2	2?8	12.0	2.0	51.5	150	— 4
9/ 6/30	158	0	52.0	1.3	25.0	13.0	1.8	58.5	280	—13

CASE 2.—J. S., aged 38, presented a typical case of thrombo-angiitis obliterans with advanced impairment of circulation in both legs, and no ulceration. Dosage of thyroid varied as indicated in table 2.

A study of table 2 shows changes following administration of thyroid extract similar to those in case 1. The

---

* From the outpatient department and the laboratories of the Mount Sinai Hospital.

This work was aided by a grant from the Samuel Keller Jacobs Research Fund for Thrombo-Angiitis Obliterans.

1. Silbert, Samuel; Kornzweig, A. L., and Friedlander, Mae: Studies in Thrombo-Angiitis Obliterans (Buerger): IV. Reduction of Blood Volume, Arch. Int. Med. 43: 948 (June) 1930.

2. Silbert, Samuel; and Friedlander, Mae: Studies in Thrombo-Angiitis Obliterans (Buerger): VII. The Basal Metabolism, J. A. M. A. 96: 1857 (May 30) 1931.

3. Thompson, W. O.: Studies in Blood Volume: I. The Blood Volume in Myxedema with Comparative Plasma Volume Changes in Myxedema and Cardiac Edema, J. Clin. Investigation 2: 477 (Aug.) 1926.

4. Wislicki, L.: Influence of Thyroid on Volume of Circulating Blood and on Blood Depots, Klin. Wchnschr. 8: 1568 (Aug. 20) 1929.

5. Silbert, Samuel; and Friedlander, Mae: Studies in Thrombo-Angiitis Obliterans (Buerger): VI. The Chemistry of the Blood, to be published.

basal metabolism remains below normal and the weight remains stationary. The effects of more intensive administration of the drug are being studied and will be reported later.

Case 3.—J. S., aged 32, presented a thrombo-angiitis obliterans, with a history of pain in the calves on walking, for five years, and a small ulcer on the left great toe for one year.

Table 3.—*Results of Examination in Case 3*

Date	Weight, Pounds	Total Thyroid per Day, Grains	Blood Volume per Kg. Cc.	Total Ash in Plasma, Gm. per 100 Cc.	Total Protein in Blood, Gm. per 100 Cc.	Calcium in Serum, Mg. per 100 Cc.	Phosphorus in Serum, Mg. per 100 Cc.	Chloride in Plasma, Mg. per 100 Cc.	Cholesterol in Plasma, Mg. per 100 Cc.	Basal Metabolism
1/15/30	171	3	....	...	.....	....	...	....	....	—23
2/ 5/30	171	3	56.0	...	21.8	12.6	1.4	57.4	210	— 8
2/22/30	173	3	68.7	1.2	23.5	12.0	1.5	59.7	210	....
3/14/30	167	9	75.5	...	.....	12.7	2.5	56.0	180	....
5/ 2/30	172	6	87.9	1.0	17.5	12.0	2.1	47.9	155	— 2
6/13/30	164	6	85.2	1.0	20.0	10.0	2.0	52.6	210	—13
7/25/30	169	6	72.0	1.2	21.8	12.0	2.0	55.0	225	+ 2
9/ 8/30	172	0	50.0	1.3	23.75	13.0	1.5	55.0	250	—20

Unfortunately, thyroid had been given to this patient for two weeks before the first determination of blood volume was made, so that in all probability it was below 56 cc. per kilogram. The steady rise in blood volume is accompanied in this case by a decrease in weight and a change in the basal metabolism from —23 to +2. The changes in total protein, calcium and cholesterol closely resemble the two previous cases. With cessation in the use of thyroid a rapid return to the figures first obtained is noted.

Case 4.—J. F., aged 28, presented a typical case of thrombo-angiitis obliterans without ulceration, with a history of pain in his foot and difficulty in walking for two and a half years.

The changes noted in the volume and chemical composition of the blood of this patient closely resemble those of the preceding cases. The fluctuations in the basal metabolism determinations must be accepted with reserve because of the poor cooperation given by this patient in carrying out the tests. The fairly consistent weight would seem to indicate that no marked change in the metabolic rate had been produced.

Table 4.—*Results of Examination in Case 4*

Date	Weight, Pounds	Total Thyroid per Day, Grains	Blood Volume per Kg. Cc.	Total Ash in Plasma, Gm. per 100 Cc.	Total Protein in Blood, Gm. per 100 Cc.	Calcium in Serum, Mg. per 100 Cc.	Phosphorus in Serum, Mg. per 100 Cc.	Chloride in Plasma, Mg. per 100 Cc.	Cholesterol in Plasma, Mg. per 100 Cc.	Basal Metabolism
1/17/30	184	0	57.0	...	.....	....	...	....	....	—19
2/17/30	183	1½	64.5	1.2	20.6	11.4	1.8	52.6	220	—12
3/ 3/30	182	3	70.0	1.3	24.7	10.4	1.5	56.0	140	—12
3/17/30	179	9	70.0	1.1	22.5	11.0	...	58.0	130	+ 2
4/14/30	179	3	76.0	1.2	22.5	11.8	1.9	50.3	185	+ 8
5/12/30	182	3	73.3	1.1	.....	11.0	2.0	50.3	....	—12
6/ 9/30	184	3	78.0	1.1	23.75	....	1.9	52.6	110	0
8/11/30	177	6	62.0	1.1	22.5	12.0	2.0	52.6	185	— 6
9/ 8/30	178	0	53.0	1.3	23.1	12.0	1.9	50.3	235	+ 6

Case 5.—B. L., aged 38, presented a typical case of thrombo-angiitis obliterans, with a history of pain in the left foot for four years and ulceration on the left fourth toe for a year and a half.

This patient shows the changes in blood and chemical composition of the blood which were found consistently in all the cases studied. Aug. 12, 1930, this patient suddenly developed symptoms of hyperthyroidism; he was admitted to the hospital, and with rest in bed and cessation of the use of thyroid, rapidly returned to a normal condition. This case differs in that several months after thyroid was discontinued the blood volume still remained normal.

COMMENT

Study of the data presented reveals that a striking increase in blood volume takes place when thyroid extract is given to patients with thrombo-angiitis obliterans. From a volume from 20 to 25 per cent below normal, the blood volume increases to normal. On continuation of the drug, there begins to be apparent after about eight weeks a tendency to diminution in the volume, and this tendency becomes definite as time goes on. With withdrawal of the thyroid, there comes a prompt fall to the blood volume figures first obtained.

With increase in the total blood volume, certain changes are noted in the chemistry of the blood. All of the constituents that are above normal, notably the total protein, calcium and cholesterol, tend to approach the normal figures. As the blood volume again diminishes, there is a gradual return to the figures first noted.

Table 5.—*Result of Examination in Case 6*

Date	Weight, Pounds	Total Thyroid per Day, Grains	Blood Volume per Kg. Cc.	Total Ash in Plasma, Gm. per 100 Cc.	Total Protein in Blood, Gm. per 100 Cc.	Calcium in Serum, Mg. per 100 Cc.	Phosphorus in Serum, Mg. per 100 Cc.	Chloride in Plasma, Mg. per 100 Cc.	Cholesterol in Plasma, Mg. per 100 Cc.	Basal Metabolism
3/19/30	176	0	62.0	1.2	23.4	13.3	2.2	67.8	230	
4/ 9/30	170	3	76.0	...	....	11.6	1.9	58.5	140	
5/14/30	171	3	77.0	1.2	24.0	11.5	2.0	50.3	210	
6/11/30	174	3	72.0	1.0	23.7	10.6	2.0	46.8	220	
7/23/30	166	6	62.8	1.1	23.7	12.0	1.9	55.0	210	
8/12/30	...	6	....	...	.....	....	...	.....	....	
8/26/30	171	0	82.0	1.0	21.2	10.5	2.8	46.8	210	
12/12/30	170	0	59.4	...	22.5	12.5	2.0	55.0	265	

All unsatisfactory

The clinical condition of these patients was carefully noted throughout the experiment, but presentation of the data is deferred until a larger number of cases have been studied.

SUMMARY AND CONCLUSIONS

Fourteen typical cases of thrombo-angiitis obliterans were treated with thyroid extract over periods of from four to eight months. Determinations were made at monthly intervals of the basal metabolism, chemical composition of the blood and clinical condition.

Following administration of thyroid the low blood volume promptly increased to normal but fell slowly as the drug was continued. On withdrawal of the drug, the blood volume returned to the low figure first obtained.

With increase in blood volume, the total proteins, calcium and cholesterol figures diminished to normal and again increased when thyroid was withdrawn.

The low blood volume in cases of thrombo-angiitis obliterans can be raised to normal by administration of thyroid.

1126 Park Avenue.

Race.—There is little clarity in regard to the term "race." When we speak of racial characteristics we mean those traits that are determined by heredity in each race and in which all members of the race participate. Comparing Swedes and Negroes, lack of pigmentation of skin, eye and hair are hereditary racial characteristics; or the straight or wavy hair of the Swede, the frizzly hair of the Negro, the narrowness and elevation of the nose among the Swedes, its width and flatness among the Negroes, all these are hereditary racial traits because practically all the Swedes and Negroes participate in them.—Boas, Frank: Anthropology, New York, W. W. Norton & Co.

V 9
193

THE GERMICIDAL AND THERAPEUTIC APPLICATIONS OF SOAPS

JOHN E. WALKER, M.D.
OPELIKA, ALA.

Soaps are highly germicidal against a number of pathogenic organisms. Their activity against streptococci, pneumococci, meningococci, diphtheria bacilli, influenza bacilli and *Spirochaeta pallida* is such that they compare favorably with many of the recently synthesized chemicals that have been heralded, at least in advertisements, as crowning achievements of modern chemistry. The standard textbooks on surgery and bacteriology, however, make practically no mention of these properties of soaps. This is partly because soaps are not germicidal against the organisms used as a routine in testing germicides; namely, typhoid bacilli and staphylococci. Also, the recognition of the germicidal properties of soap is comparatively recent. Despite the fact that their limited activity against staphylococci and typhoid bacilli precludes their use as general germicides, it has been amply shown that their hygienic value by no means rests solely on their detergent properties.

In addition to their use for purposes of hygiene, Renaud [1] has recently revived interest in the possible therapeutic application of soap. He used a 2 per cent solution of sodium oleate as an irrigation and as a wet dressing for ulcerated surfaces and abscesses. His results were very favorable in tuberculous abscesses, pyogenic abscesses and genital sores. He believes that the low surface tension of such a solution of soap, whereby it penetrates quickly into all crevices, greatly enhances its value. The results of Renaud's work, taken together with the fact that reference books make no reference to the germicidal properties of soaps, seem to render desirable a brief review of recently acquired knowledge of this subject.

Lamar [2] showed that sodium oleate was strongly bactericidal against pneumococci and streptococci. Reasoner [3] demonstrated that soap has a germicidal and solvent action on *Spirochaeta pallida*. Nichols [4] became interested in the subject on account of the possibility of the spread of respiratory disease by contaminated eating utensils during the World War. He found that ordinary soap solutions (about 0.5 per cent) used in washing mess kits destroyed pneumococci, streptococci and influenza bacilli.

Soon thereafter, I [5] undertook a more thorough investigation of the whole subject, beginning the work with chemically pure compounds. The work with the chemically pure compounds need not be repeated here, other than to say that the results obtained with commercial soaps agreed with the results anticipated from the knowledge of the chemically pure compounds.

The effect of six representative soaps is given in the table, the killing strengths for two and one-half minutes at 20 C. being recorded and compared with that of phenol as a control germicide under the same experimental conditions.

1. Renaud, Maurice: Sur le traitement des plaies et surfaces ulcérées par les savons, Bull. et mém. Soc. méd. d. hôp. de Paris **46**: 1584 (Nov. 10) 1930.
2. Lamar: J. Exper. Med. **13**: 380, 1911.
3. Reasoner, M. A.: The Effect of Soap on Treponema Pallidum, J. A. M. A. **68**: 973 (March 31) 1917.
4. Nichols, H. J.: J. Lab. & Clin. Med. **5**: 502 (May) 1920.
5. Walker, J. E.: The Germicidal Properties of Chemically Pure Soaps, J. Infect. Dis. **35**: 557 (Dec.) 1924; The Germicidal Properties of Soap, ibid. **37**: 181 (Aug.) 1925; **38**: 127 (Feb.) 1926.

The table indicates that all the soaps possess marked germicidal action against the common organisms giving rise to respiratory infections and against gonococci. It is also seen that it is impossible to stress the virtue of any particular soap. For this reason it has not seemed necessary to name the brands of commercial soaps used in the experiments.

The significance of the fact that soap concentrations of from 1:80 to 1:1,280 destroy bacteria is readily appreciated when it is realized that the concentration of soap in an ordinary thick lather used in hand-washing is in the neighborhood of 1:12. Moreover, it was shown that the activity of soap was at least doubled when the temperature of the water was increased to 35 C.; that is, to about body temperature. And the activity was still further enormously enhanced when hot water (45 C.) was used. The latter effect was, of course, partly the result of the heat.

These results all indicate that the thorough washing of the hands with soap suffices for the destruction of streptococci, pneumococci, meningococci, gonococci and diphtheria bacilli. Influenza bacilli and *Spirochaeta pallida* are also to be included in this group as a result of the work of Reasoner and Nichols. These microorganisms will also be destroyed by the hot soapy water used in washing dishes. These remarks are based on

Killing Strength of Various Soaps in Two and One-Half Minutes' Exposure at 20 C.

Soap	Organism				
	Pneumococcus	Streptococcus	B. Diphtheriae	Meningococcus	Gonococcus
White floating	1:320	1:320	1:640	1:640	1:1,280
Perfumed toilet	1:320	1:160	1:640	1:640	1:640
Brown bar (laundry soap)	1:320	1:80	1:640	1:640	1:640
Sapo mollis (U. S. P.)	1:160	1:160	1:640	1:640	1:640
Coconut oil	1:320	1:320	1:320	1:640	1:1,280
Olive oil	1:320	1:160	1:640	1:640	1:640
Phenol (control germicide)	1:50	1:50	1:100	1:100	1:100

the purely bactericidal action of soap, and this effect in actual practice is, of course, supplemented by the mechanical removal of bacteria.

It was further found that the germicidal action of soap was greatly depressed by the presence of albuminous material such as serum. This property is possessed by practically all germicides. For instance, I [6] have shown that mercurochrome-220 soluble not only ceases to be a germicide when added in ordinary concentrations to fresh defibrinated blood but actually interferes with the germicidal functions of the serum and leukocytes. However, I treated several rabbits infected with virulent pneumococci by subcutaneous and intravenous injections of soap solutions. The treatment did not have the slightest effect on the infections.

Larson [7] and Davison [8] have shown that soaps have a definite effect in neutralizing bacterial toxins. Renaud also believes that this property supplements the germicidal action of soap when used in the treatment of wounds.

As sodium oleate is the least irritating of the soaps, Renaud's choice of it in preference to other soaps is unquestionably to be commended. It is easily obtainable in powdered form. Sapo (U. S. P.) will probably

6. Walker, J. E.: Effect of Mercurochrome-220 Soluble on the Germicidal Properties of Fresh Defibrinated Blood, Arch. Path. **1**: 199 (Feb.) 1926.
7. Larson: Proc. Soc. Exper. Biol. & Med. **21**: 278, 1924.
8. Davison, F. R.: Detoxifying, Diffusing, Germicidal and Surface Tension Depressing Properties of Soaps, J. Infect. Dis. **43**: 292 (Oct.) 1928.

answer the same purpose, being prepared exclusively from olive oil and consisting therefore of about 75 per cent of sodium oleate.

CONCLUSION

Soaps are strongly bactericidal against pneumococci, streptococci, meningococci, gonococci, diphtheria bacilli, influenza bacilli and *Spirochacta pallida*. Their activity against these organisms compares favorably with that of many of the recently synthesized chemicals. When properly used for cleaning the hands or for the washing of eating utensils, soaps are undoubtedly potent factors in preventing the spread of diseases due to these organisms. The action of soaps as germicides is, however, limited by the fact that they do not destroy staphylococci and typhoid bacilli.

Renaud has recently found 2 per cent solutions of sodium oleate beneficial as an irrigation and wet dressing for ulcerated surfaces.

TENSION PNEUMOTHORAX WITH SUBCUTANEOUS EMPHYSEMA

THE MECHANISM OF TENSION PNEUMOTHORAX *

NATHAN M. FENICHEL, M.D.
NEW YORK

Two unusual instances of pneumothorax complicated by subcutaneous emphysema have been observed. In the first patient, generalized subcutaneous emphysema and a left pneumothorax followed an attempt at an intracardiac injection of epinephrine. A review of the literature does not reveal a similar complication, although Graham [1] noted an infant who developed a left pneumothorax subsequent to an intracardiac puncture at birth. In the second patient, these phenomena were observed after the aspiration of a pleural effusion.

It is generally held that a pneumothorax is produced by the aspiration of air from the ruptured lung into the intrapleural space during inspiration. While this explanation may account for the ordinary pneumothorax, in which the intrapleural pressure is negative or atmospheric during the inspiratory phase, it does not satisfactorily apply to a tension pneumothorax, in which the pressure is positive during both phases. A consideration of the complete mechanism involved in the latter type of pneumothorax is presented.

REPORT OF CASES

Case 1.—A. F., a woman, aged 60, admitted, Oct. 21, 1930, had suffered for the past eight years from attacks of syncope, which came on suddenly, either at home or in the street, and lasted several hours. Following the attacks, transient paralyses of one or more extremities persisted for several days. Her systolic blood pressure varied from 180 to 200 mm. of mercury.

October 21, she was seized with an attack in the street, where she was found to be pulseless and almost moribund. An intracardiac injection of epinephrine was administered through the left fourth intercostal space about two inches from the midline with resultant revival.

On admission to the hospital, she appeared semicomatose; her pulse was rapid and thready, and her breathing was labored and accompanied by a pronounced expiratory grunt. Subcutaneous emphysema became evident first at the site of the needle puncture but continued to increase rapidly, so that within fourteen hours the entire surface of the body above the hips was involved. Her eyes were shut by the emphysematous swelling of the lids. Crepitus could be detected as far distally as the dorsum of each hand. She became markedly cyanotic and appeared to be asphyxiated by the collar of air around her neck. Twenty hours after admission a trocar was inserted into the pectoral subcutaneous tissue, with the immediate escape of considerable air. It was found that massage facilitated the expulsion of air from more distant areas. The trocar was removed after eight hours, her color having improved and the subcutaneous emphysema having receded markedly. The following day she could talk and was able to take nourishment. At this time the patient exhibited weakness of the left arm and the left leg and a bilateral Babinski. Her blood pressure was 150 systolic and 80 diastolic. The chest was barrel shaped. The heart sounds were distant and heard best in the midline. The breath sounds were diminished over the entire left side of the thorax. The pulse was paradoxical in that its force was decreased during inspiration.

During the next three days it was necessary to reinsert the trocar frequently. It was observed that the rate of subcutaneous infiltration of air was greater during periods of coughing or grunting and that morphine, which relieved these symptoms, concomitantly diminished the rate. On the fifth day the patient suddenly became more dyspneic and moist tracheal rales were audible. A needle was then inserted into the left pleural cavity through the eighth intercostal space, midaxillary line, and pressures of + 6 cm. of water in inspiration and + 10 cm. in expiration were registered; 750 cc. of air was then withdrawn with slight temporary improvement. Despite stimulation, her condition became worse and she died eight hours after the aspiration.

An autopsy was not obtained. A roentgenogram of the chest, taken eight hours after death, showed considerable air in the subcutaneous tissues, a left pneumothorax and a displacement of the mediastinum and heart toward the right (fig. 1). There was no evidence of a fractured rib.

An emphysematous bleb overlying the heart was probably punctured during the intracardiac injection, and a tension pneumothorax ensued. The subcutaneous emphysema was due to the escape of air from the pneumothorax through the puncture wound in the intercostal space. This was confirmed by the inital appearance of the emphysema at the site of the skin perforation. The intercostal channel was, in effect, a safety valve in preventing the production of too high a pressure in the left pleural cavity.

Case 2.—J. R., a man, aged 49, was admitted, March 12, 1927, with generalized anasarca resulting from a previous coronary occlusion. During the following four months, frequent thoracenteses and abdominal paracenteses were performed. After this, diuretics (frequent mersalyl injections and 70 Gm. of urea by mouth daily) kept him almost free from edema, the mechanical removal of fluid no longer being required. A roentgenogram of the chest, Dec. 24, 1928, revealed a small pleural effusion and some pleural thickening at the right base (fig. 2).

Jan. 3, 1931, the patient contracted an acute bronchitis. During the following five days he became weaker and more dyspneic, and the physical signs indicated a persistence of the effusion at the right base. Five hundred cubic centimeters of reddish brown fluid was then removed by thoracentesis. Immediately after the aspiration, he coughed and subcutaneous emphysema became evident at the site of the needle puncture. During the next twenty-four hours the emphysema slowly increased and spread to the right side of the chest and neck. Except for frequent spells of coughing, he felt more comfortable. A roentgenogram of the chest, January 9, showed the presence of air in the subcutaneous tissue of the right side and the replacement of the previous effusion at the right base by an encapsulated pneumothorax (fig. 3). He died suddenly, January 10. During the last day the subcutaneous emphysema had diminished slightly.

An autopsy was performed January 10, eight hours after death, by Dr. S. H. Rosen. The heart was markedly hypertrophied and dilated. The coronary vessels were only slightly sclerosed. An old healed infarct was found in the posterior wall of the right ventricle. About 800 cc. of fluid was present in the left pleural cavity. The base of the right pleural cavity,

---

* From the Medical Division of Montefiore Hospital, service of Dr. B. S. Oppenheimer.

1. Graham, E. A.: Alterations of Intrapleural Pressure and Their Significance, Medicine 3:417 (Nov.) 1924.

which contained about 600 cc. of air, was completely walled off by the fusion of the thickened visceral pleura with the parietal pleura. On the posterior surface of the partially collapsed right lower lobe, overlying approximately the site of the puncture wound in the ninth intercostal space, a hemorrhagic crust about 2 mm. in diameter was seen.

During the thoracentesis a pulmonary perforation was produced which probably closed within twenty-four hours, since the spread of the subcutaneous emphysema ceased at this time. Presumably, the air escaping from the rupture in the lung filled the walled off intrapleural space which was previously occupied by fluid and then leaked out into the subcutaneous tissue. Complications such as this are not at all infrequent in thoracenteses.

COMMENT

In order to infiltrate the subcutaneous tissue with air, a pressure greater than that of the atmosphere is required, for the skin is at all times subject to the latter pressure. In the first case I actually observed a positive intrapleural pressure (from + 6 to + 10 cm.). In the second case the pressure in the localized pneumothorax was probably also positive. It should be noted here that, in the development of mediastinal emphysema, this general rule does not necessarily apply. The patient accumulated air subcutaneously much more rapidly during spells of coughing and grunting.

THE MECHANISM OF TENSION PNEUMOTHORAX

For the development of a tension pneumothorax, a valvular perforation of the lung is required through which air can pass only from the lung into the pleural cavity, any retrograde current immediately collapsing the opening in the soft pulmonary tissue. If the perforation were to remain patent to air currents in either direction, an average pressure above atmospheric pressure could not be obtained. By means of a valvular perforation, air is aspirated into the pleural cavity with each expansion of the chest in inspiration and remains trapped during expiration. The result is a gradual collapse of the elastic lung. Since the alveolar air is in free communication with the external air through the respiratory tract, its pressure in inspiration is one atmosphere or less, depending on the vigor of the inhalation. Therefore, air can escape into the pleural cavity during inspiration only until the inspiratory pressure in that chamber becomes atmospheric. This mechanism, dealing only with the dynamics on the

Fig. 1 (case 1).—Condition after death: air in the subcutaneous tissues of the right side particularly, a left pneumothorax, and a displacement of the heart and mediastinum toward the right.

Fig. 2 (case 2).—Condition before aspiration: a pleural effusion with some pleural thickening at the right base.

Fig. 3 (case 2).—Condition after aspiration: some air in the subcutaneous tissues of the right side, and replacement of the previous effusion at the right base by an encapsulated pneumothorax.

mediastinal pressure in normal respiration is negative and approximately equal to the intrapleural pressure. Hence, in an esophageal or tracheal perforation, air under less than atmospheric pressure can be aspirated into the areolar tissue of the mediastinum.

The pronounced influence of coughing and grunting toward increasing the pressure in the pneumothorax has frequently been noted. Dubrow,[2] in reporting the occurrence of a spontaneous pneumothorax in a pregnant woman with pulmonary tuberculosis, stated that the intrapleural pressure was positive following coughing spells regardless of whether aspiration had been performed a short time before. Nowak and Churchill [3] also remarked on the influence of coughing in forcing air through the pulmonary perforation. They inserted a catheter into the pleural cavity of one patient who was suffering from a high tension spontaneous pneumothorax and found that an average of 3 cc. of air was expelled with each breath, whereas an average of 10 cc. was expelled with each cough. Similarly, my first injured side, does not account for the production of a tension pneumothorax in which a positive intrapleural pressure is obtained during inspiration as well as expiration. In the first patient and in many reported instances of tension pneumothorax, a positive pressure during both phases of respiration was registered. The pressures in inspiration and expiration in Watterson's [4] four cases were, respectively, + 1.5 and + 3, + 5 and + 5, + 2.5 and + 3, + 4 and + 6; in Dubrow's [2] case, + 1 and + 2; in Pollak's [5] case, + 1 and + 5; and in Nowak and Churchill's [3] case, + 8.5 and + 14 (cm. of water).

Since the bronchial passages communicate with each other through the trachea, an analysis of the part played by the intact lung may provide an adequate explanation. In the presence of a chest wall opening, O'Dwyer [6] and recently Lilienthal [7] noted the influence of the functioning lung in aiding the expansion of the collapsed

2. Dubrow, J. L.: Pulmonary Tuberculosis in a Pregnant Woman Terminating in Spontaneous Pneumothorax Shortly Before Labor, Am. Rev. Tuberc. **11**: 413 (July) 1925.
3. Nowak, S. J. G., and Churchill, E. D.: Intrathoracic Pressure Studies in Two Types of Valvular Spontaneous Pneumothorax, Am. Rev. Tuberc. **23**: 127 (Feb.) 1931.
4. Watterson, W. H.: Deflation of the Pleural Cavity in the Treatment of Spontaneous Pneumothorax, Am. Rev. Tuberc. **14**: 80 (July) 1926.
5. Pollak, Maxim: Bilateral Artificial Pneumothorax Complicated with Spontaneous Pneumothorax, Am. Rev. Tuberc. **20**: 767 (Nov.) 1929.
6. O'Dwyer, J.: Researches of Loomis, Lab. Univ. of City of New York, 1890, Number 1.
7. Lilienthal, Howard: Pleuropulmonary Behavior in Open Pneumothorax, J. A. M. A. **94**: 1550 (May 17) 1930.

but intact lung. To explain the production of the high pressure occurring in a valvular perforation of the lung, von Muralt[8] suggested that during expiration with momentary closure of the glottis, as in coughing, the intact lung might force air into the pneumothorax. The explanation presented is in conformity with this suggestion.

Let us consider an instance in which a valvular perforation of the lung is present. The initial collapse readily results from the passage of air into the pleural cavity during inspiration. As a consequence, that side of the chest becomes relatively splinted in comparison with the opposite side, which now has, in compensation, exaggerated respiratory movements. If the larynx is momentarily closed during expiration, as in coughing or grunting, air can be forced out of the intact lung into the splinted pleural cavity through the intervening bronchi and valvular perforation. In the intact lung there is the source of a considerable pressure, which can in turn induce high positive pressure in the pneumothorax. According to Howell,[9] an intrapulmonary pressure as high as 100 mm. of mercury occurred during forced expiration with a closed glottis. In forced

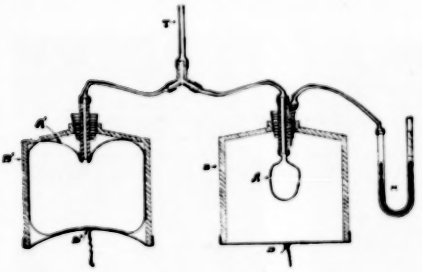


Fig. 4.—*B* and *B'* are bottles with the bottoms removed. *D* and *D'* are rubber dam diaphragms with strings attached for traction. *A'* is a thin rubber balloon which is inflated while the rubber stopper is loosened to permit the escape of the air from the bottle. When the stopper is replaced, *D'* is drawn upward because of the negative pressure which results in *B'* from the elasticity of the expanded balloon. *A* is a balloon in which a small hole is made. *T* is a piece of soft rubber tubing. *M* is a manometer.

expiration with an open glottis, Starling[10] noted a pressure as high as 87 mm. of mercury. Provided the patient has labored respirations, transient closure of the glottis is not always necessary for the induction of a pronounced positive pressure in the pneumothorax. In either event, the subsequent accumulation of air in the pneumothorax under positive pressure is essentially an expiratory phenomenon. It is evident that both the inspiratory and the expiratory mechanisms can function together, thereby hastening the collapse of the punctured lung.

In order for the intact lung to function in pumping air into the pneumothorax, the expiratory muscles on that side must exert more force than those on the side of the pneumothorax. If these forces were equal, the rise in intrapleural pressure would be the same bilaterally, and air would not be driven through the perforation. That the latter force is less may be inferred from the splinting, which is readily observed clinically. The following facts in support are enumerated:

1. Thoracic expansion of the affected side is hindered because of the relatively slow admission of air into that side during the short period of inspiration. One factor in accounting for this is the probable diminution in the expansibility of the atelectatic lung. Because of the incomplete expansion of one half of the thoracic cage, its expiratory muscles cannot exert as much force.

2. In a high tension pneumothorax, the positive pressure during expiration is only slightly reduced during inspiration. This indicates a feeble attempt at expansion as well as contraction. It is of interest to remark that the mediastinal flutter, which would result from a considerable variation in the pressure of the pneumothorax, is under these circumstances minimized.

A model was suggested and constructed by Dr. S. H. Rosen to illustrate the inspiratory and expiratory mechanisms (fig. 4). If air is aspirated into the bottle (*B*) by traction on its diaphragm (*D*), it remains trapped when the diaphragm is released. After this has been repeated several times, the diaphragm bulges downward, but a limit to its descent is quickly reached. During this procedure, which represents the inspiratory mechanism, the manometer registers a pressure varying from negative on traction to positive on release. If, now, the diaphragm (*D'*) of the other bottle (*B'*) is pulled down, and after *T* has been closed is released, additional air can be forced into the first bottle (*B*). If this cycle is repeated several times, a greater pressure is produced in bottle *B*, as indicated by a further depression of its diaphragm. During the second procedure, which illustrates the expiratory mechanism, the manometer shows a gradually increasing positive pressure. Even more marked pressure can be obtained in the bottle (*B*) by exerting an upward force on the diaphragm (*D'*) at the same time that the latter is being released.

TREATMENT OF SUBCUTANEOUS EMPHYSEMA AND TENSION PNEUMOTHORAX

Multiple small skin incisions are generally recommended for the relief of the subcutaneous emphysema. In the first patient, the insertion of a trocar into the subcutaneous tissue proved very satisfactory. In addition, massage directed toward the trocar was of value in expelling air from more distant regions. The latter procedure appears the more favorable because of its greater facility, the less danger of infection, and the elimination of bleeding with the possible subsequent closure of the incised wound by clot.

Unless the pneumothorax causes definite embarrassment, it is advisable not to aspirate, since the increasing pressure in this chamber tends to prevent the further admission of air and thereby facilitates the healing of the perforation. To alleviate coughing and grunting, the liberal administration of morphine is advised. Aspiration of the pneumothorax by the introduction of a needle into the pleural cavity is indicated when the patient becomes embarrassed. If the air continues to accumulate, it may be necessary to repeat this procedure or even to insert a catheter. The relief of distressing symptoms after the withdrawal of air is often spectacular. Many instances are reported in which aspiration was veritably life-saving.

SUMMARY

1. Two instances are reported in which a tension pneumothorax and subcutaneous emphysema followed a thoracentesis.

8. von Muralt, L.: Der künstliche Pneumothorax, ed. 2, Berlin, Julius Springer, 1922.
9. Howell, W. H.: A Textbook of Physiology, ed. 9, Philadelphia, W. B. Saunders Company, 1925, p. 660.
10. Starling, E. H.: Principles of Human Physiology, Philadelphia, Lea & Febiger, 1926, p. 895.

2. Forced expiration, especially with momentary closure of the glottis as in coughing, grunting, talking and straining, produces a marked increase of the pressure in the pneumothorax.

3. The mechanism of the development of a tension pneumothorax is explained.

4. Special points in therapy are: (*a*) the removal of the subcutaneous air by the insertion of a trocar, and (*b*) the liberal use of morphine to minimize coughing and grunting.

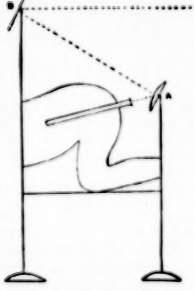
Clinical Notes, Suggestions, and New Instruments

THE USE OF A MAGNIFIED DOUBLY REFLECTED IMAGE IN PROCTOLOGIC DEMONSTRATIONS

JOSEPH FELSEN, M.D., NEW YORK

The purpose of the instrument is the demonstration of rectal or sigmoid lesions to large groups simultaneously. An enlarged vertical image of the rectosigmoid field obtained by means of a planoconvex mirror is reflected in a plane surfaced mirror.

The apparatus consists of: 1. An electrically illuminated sigmoidoscope of the Tuttle type having a light at the distal end, the lighting device sliding in a slot in the wall of the instrument. 2. A planoconvex lens silvered on the posterior or plane surface, of high optical quality. This is also commonly known as a curved or enlarging mirror.[1] A convenient size is the round type, 6 inches in diameter. 3. A plane surfaced mirror of high optical quality, 6 by 8 inches.



Arrangement of mirrors (schematic), extension arms of mirror supports not being shown: *A*, enlarging mirror, planoconvex; *B*, plane surfaced mirror; *C*, eye. The enlarged upright image of the sigmoidoscopic field is seen in *B*.

Both mirrors may be mounted on adjustable metal floor stands, with goose neck extensions, or on jointed rigid arms which can be fixed at any desired level. The extensions or arms should be of sufficient length (24 inches) to enable the demonstrator to fix the curved mirror near the end of the sigmoidoscope and the plane surfaced mirror from 2 to 4 feet above the patient and in direct line with the curved mirror. Mirror holders are of the ball and socket type.

The patient is placed in the knee-chest or left Sims position on a suitable table and the lighted sigmoidoscope or proctoscope inserted to the point of the bowel to be demonstrated. The curved mirror is placed from 4 to 6 inches from the proximal end of the sigmoidoscope and at an angle of approximately 45 degrees. This point will correspond to that location at which the image of the bowel area is obtained with the greatest magnification without sacrifice of clarity. This will vary, depending on the focal distance of the curved mirror being used. The image thus obtained is upright and is reflected in the second or plane surfaced mirror placed from 2 to 4 feet above the patient and parallel or almost parallel to the curved mirror. This second image is the one viewed by the audience, being above the patient, who may even be screened from the spectators. Once placed, the mirrors may be left in the same relative position for all patients, necessary modifications of elevation being made.

Heretofore demonstration of rectosigmoid lesions has been limited to individual students or very small groups. With the simple arrangement described the lecturer may demonstrate pathologic lesions simultaneously to relatively large groups; the field may be readily changed and no time is wasted in waiting for individuals to take their turns at the instrument. This adds materially to the comfort of the patient, especially in the presence of ulcerated lesions. Moreover, with two sets of mirrors on hand a second patient may be prepared by an assistant, or with multiple sets of mirrors many patients may be shown in rapid succession.

Experiments are being made at the present time with a vertical illuminator and enlarging camera, the object being to project a greatly enlarged image directly on a ground glass screen. Thus far magnifications beyond 3 × or 4 × cause fuzziness or haziness of outline. The same is true of a concave mirror and screen, the image in this case being inverted. The optical principles involved are now being studied with a view to devising a compact projection apparatus.

This simple and inexpensive arrangement is adaptable to the bronchoscope, esophagoscope and cystoscope.

667 Madison Avenue.

1. Another type of magnifying mirror is the concavoconvex glass of practically uniform thickness (Bausch and Lomb).

SLIPPING RIBS: REPORT OF CASE*

J. DEWEY BISGARD, M.D., CHICAGO

Recurring luxation of the lower costal cartilages, with abnormal mobility and its associated symptomatic syndrome, was first described by Davies-Colley[1] in 1922 under the caption of "Slipping Rib." Although apparently not a rare condition, it has received but little attention in medical literature.

Of the ten cases reported, seven occurred in women, two in men, and in one the sex was not designated. The ages of the patients ranged from 17 to 42 years. In only three cases was the malady preceded by a fairly definite history of injury.

In all instances a rather constant and classic picture was presented. Radiating from the site of the luxating cartilage along the costal or sternal margin, sharp and frequently excruciating pain was experienced as the result of lifting, or in certain motions of twisting or flexing the body. In most instances the patients were completely incapacitated by the pain. Some patients related a sensation of the "rib jumping out of place" and the appearance of a tender, painful mass along the sternal or costal margin, simultaneous with the onset of the pain. Reduction, with relief of pain, was spontaneous, or accomplished by hyperextending the trunk or by deep breathing in the prone position. Definite demonstrable tenderness and abnormal mobility of the loose rib cartilage were invariably present.

The treatment in most of the cases reported has been resection of the loose terminal portion of the rib cartilage and has resulted in complete relief of symptoms.

Interest in this condition is mainly justified in point of differential diagnosis, as exemplified by the fruitless laparotomy resulting from a mistaken diagnosis which inspired Davies-Colley to make his original report. He states, "In its [the pain's] position at the costal margin it resembles that due to so many deeper lesions both of the abdomen and the thorax that I think it is quite likely that many cases occur in which such an unimportant cause as a movable rib cartilage is unsuspected, and the diagnosis is missed."

REPORT OF CASE

A school girl, aged 16 years, had had heart trouble following inflammatory rheumatism at the age of 8 years. Her family and past histories were otherwise unimportant.

With no memory of an antecedent injury, she began frequently to experience a sharp, stabbing pain in the right hypochondrium on bending forward or to either side and on rising from a prone position. The pain followed the course of the fifth and sixth intercostal nerves and was frequently accompanied by nausea and by a sensation of something slipping or "giving way" along the right costal margin. Relief, if not spontaneous, could always be obtained by lying down. Constantly from the date of onset there had been soreness and tenderness definitely localized over the distal extremities of

* From the University of Chicago Clinics.

1. Davies-Colley, Robert: Slipping Rib, Brit. M. J. **1**: 432 (March 18) 1922.

the fifth and sixth costal cartilages. The fear of pain had greatly limited her activities.

Physical examination revealed nothing of importance except the evidence of a mitral stenosis (perfectly compensated) and the present illness—luxation of the fifth and sixth costal cartilages. Localized tenderness and abnormal mobility could readily be demonstrated. With flexion of the body the ends of both cartilages could be felt to move forward and upward, and promptly to snap back into place on reextending the trunk. All laboratory studies, including roentgenograms of the chest and spine, the blood Wassermann test and a Pirquet test were negative.

Feb. 15, 1931, with intercostal nerve block anesthesia, the cartilages of the fifth and sixth ribs were exposed through a curved incision, and a definite luxation was demonstrated. Both costal cartilages were excised. The patient made an uneventful convalescence and recently reported (now two months after operation) complete relief of symptoms. The specimens showed no evidence of gross or microscopic pathologic changes in the cartilage.

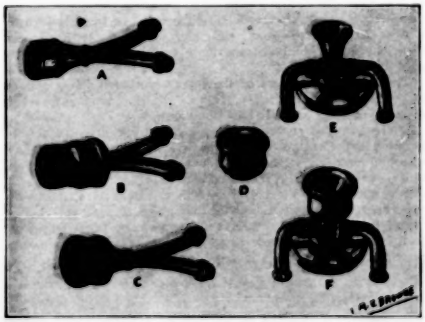
SUMMARY AND CONCLUSIONS

1. There appears to be insufficient evidence to establish any etiologic conclusions. The female sex greatly predominates.
2. All cases reported presented classic clinical pictures.
3. An added interest in the case reported is afforded by the multiplicity of the lesions. There has been no case previously reported with more than one slipping rib.

A SIMPLE STETHOSCOPE TIP

GEORGE CLIFFORD KING, M.D., FALL RIVER, MASS.

In 1911, while a house officer at the Boston Floating Hospital, I started using a baby's nipple over a Snofton stethoscope from which the hard rubber bell had been removed, as shown in the accompanying drawing. This combination was found so satisfactory in listening to the chest in thin and emaciated babies that it was used by all the physicians on the boat that summer. The nipple is easily and economically changed as soon as the rubber has lost its tone, or for other reasons.



A, Snofton stethoscope without hard rubber bell; *B*, nipple with tip cut off—pulled on inside out; *C*, nipple base brought forward so that roll extends over metal; *D*, basal half of nipple; *E*, Carlsberg stethoscope; *F*, basal half of nipple entirely covering hard rubber bell of Carlsberg stethoscope. Tip Top Nipple (Junior number 4) is used in the illustration.

This simple and inexpensive tip has since been used by many pediatricians in New England. The idea has been passed on from one to another, but to my knowledge it has not been written up or described in the literature.

About six months ago good salesmanship made me change to the Carlsberg stethoscope and I added a nipple to the small bell, as shown in the drawing.

Again I became impressed with the value of the nipple tip, especially during the winter months. If after listening with the nippled bell I change to the diaphragm, the infants wiggle or cry and the children complain of the sensation of sudden cold. On subsequent visits, even before the examination has begun, many children say "Use the hot one, not the cold one."

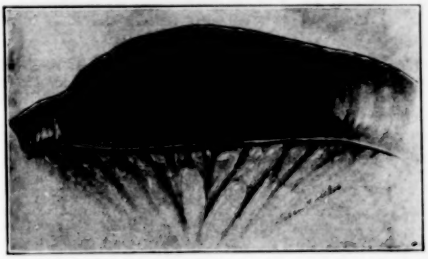
Most of the ordinary nipples may be used on any of the bell type stethoscopes in use today. The rubber allows closer application of the stethoscope to the chest and eliminates outside noises. This, I feel, is a distinct advantage.

150 Purchase Street.

INTESTINAL OBSTRUCTION FROM EATING BRAN

MURRAY B. DAVIS, M.D., NASHVILLE, TENN.

It is fashionable to treat constipation by the addition to the diet of bran, rough fruits, vegetables and other indigestible substances. The use of bran as a laxative food has become so



Ball of bran in the small intestine, of firm consistency and about the size of a hen's egg.

popularized that the public has come to believe that it is harmless. Alvarez says that it is one of the most indigestible foods to be found in nature and that it was especially designed to carry seed unchanged through the intestinal tract of herbivores. He goes on to say that those who, except for constipation, have perfect digestions, may be greatly helped by the addition of roughage to the diet; but others who have short, inefficient and irritable bowels may get into trouble. He reports the case of a woman who for ten years had kept herself in fair health by sticking to a smooth diet, one that she had worked out herself by trial and error. A physician prescribed bran. In a few weeks she was operated on for intestinal obstruction; the bran had balled up in the small intestine near an old postoperative adhesion.

This is the only case that I have been able to find in the literature of intestinal obstruction from the use of bran. Dr. W. A. Bryan of this city, a few years ago, removed a large ball of bran from a man's stomach; this patient was also suffering from gastric ulcer.

Persons who have intestines that are easily upset cannot tolerate such a heavy overload. Persons with partial obstruction or with a sluggish intestinal tract—and every physician is familiar with persons who are perfectly normal and healthy yet whose bowels act only once or twice a week—are of the type that I feel is harmed by bran. When eaten by such persons it is liable to "ball up" in the intestinal tract and produce obstruction.

Mrs. M. G., aged 50, white, the wife of a physician, had had two previous abdominal operations, had suffered for years from constipation, and had at last become firmly addicted to the so-called pill habit. About a week previous to her trouble she had started to eat bran. On the night of December 2, she retired feeling normal and was awakened at 3 a. m. with severe cramplike pains in the abdomen, with nausea and with vomiting. The patient was diagnosed by her husband as having obstruction and was brought to St. Thomas Hospital that day.

Under spinal anesthesia the abdomen was opened and about 12 inches (30 cm.) from the ileocecal valve, in the ileum, a complete obstruction was found from a mass of bran about the size of a hen's egg. It was impossible to break this up and to

milk it through into the cecum, so intestinal clamps were applied and the mass was removed from the intestine. The patient made an uneventful recovery and was discharged from the hospital in twelve days.

Doctors' Building.

Special Article

USEFUL ANESTHETIC AGENTS AND METHODS *

JOHN S. LUNDY, M.D.
ROCHESTER, MINN.

A discussion of the usefulness of an anesthetic agent demands greater latitude than a presentation of merely the indications and contraindications for the use of the agent. This paper is to consider briefly, or at least to mention, many of the various uses to which the several anesthetic agents and methods might be put. When the indications and contraindications seem to be clear cut they will be mentioned, but they may not be the deciding factors in the use of an anesthetic agent. Doses will apply to adults, unless otherwise specified.

In selecting the anesthetic for a given case, the considerations involved fall into two classes: preliminary and final. The final considerations are concerned essentially with the pharmacologic effects of the drugs as modified by the methods of administration. The preliminary considerations are concerned with the remainder of the factors relevant to choosing an anesthetic. In the choice of an anesthetic one begins, as a rule, with the preliminary considerations and then continues with those that are final. For example, if the anesthetist as well as other members of the surgical team is unfamiliar with spinal anesthesia, preliminary consideration might result in the method being avoided. Again, if a patient refuses a certain type of anesthesia, it may be well avoided. Final considerations would, for example, exclude any anesthetic or method that would prevent a patient recovering consciousness quickly, or prevent his speaking during the operation if either should be requisite to safety or success.

Various new anesthetic agents have been introduced.[1] This, to some extent, has complicated the problem of eliminating less desirable anesthetics for a given case. I feel that the choice of an anesthetic is best made by following a definite plan. The preliminary considerations to guide this choice are: (1) the mental and physical condition of the patient, (2) the proposed operation, (3) the technic of the surgeon, and (4) the experience of the anesthetist. Each of these factors, if given proper consideration, tends to exclude certain agents and methods, and so to limit one's choice. The final considerations in making the decision are the answers to questions: 1. Is the need for anesthesia or for analgesia? 2. Is relaxation necessary? 3. Is quiet breathing necessary? 4. Is quick recovery of the reflexes desirable or necessary? 5. Is a given agent or method likely to produce immediate or delayed untoward results? The use of each agent is limited by certain effects, and these effects must be borne in mind. At present I feel that no agent or method has been developed which can be used as a routine without danger. If a routine must be followed, balanced anesthesia [2] may be used; by such a method, moderate amounts of several agents are used rather than a large dose of one or large doses of two. This applies to preliminary medication as well.

SURGICAL PROCEDURES

Volatile Agents.—Ether, for almost eighty-five years, has been one of the most useful anesthetic agents. At various times there has seemed to be no satisfactory substitute for it, regardless of climate, requirements of portability, the proposed operation, or the patient's age and physical condition. More recently, in many localities, other agents have become available.

There are four methods of administration of ether. The first is inhalation. Vaporized ether may be inhaled with gaseous agents, but its use in that way will be considered later. I shall confine my remarks here to the open-drop, the semi-open-drop, and the semiclosed methods. The demands for easy portability have been partly responsible for the enormous popularity and general usefulness of ether when it is vaporized on a mask covered with gauze. Many types of masks have been employed. Probably the best one is the wire mask of large size, covered with gauze, which is used in the open-drop or semi-open-drop method. The difference between these methods lies in the amount of gauze or cloth that is used to cover the mask and the patient's face. For general surgical purposes the ether should be dropped or poured on the gauze in such amounts, and at such a rate, that the resulting anesthesia will be uniformly even, although by this method intermittent anesthesia is possible when required. Usually, results with this method are satisfactory if the vapor administered is not too concentrated, and if preliminary medication is not sufficient to depress the respiratory center. Morgan's modification of Morton's original technic lends itself very well to the administration of ether by the semiclosed method, in which air is drawn by inhalation over ether, and into a breathing bag, which in turn is connected to the patient's respiratory apparatus by a mask and a tube of wide diameter. With this apparatus one may also utilize Haggard's principle of giving medicinal carbon dioxide in any needed amount to increase the depth of respiration and thus to hasten the absorption and elimination of ether.[3] A great number of devices have been developed for generating ether vapor and passing it through a tube and under an ether mask covered with gauze. Each of these methods has some point of practical or theoretical importance if it is desired to add moisture or heat or both to the ether vapor. The question of the advantage of adding heat or moisture to the vapor instead of utilizing that of the patient, through rebreathing, is much discussed. Ether administered by these methods produces anesthesia, and fairly large doses produce relaxation. Respiration is not always quiet. Recovery of the reflexes is definitely delayed and varies directly with the amount of ether administered. Immediate untoward results seldom are seen, but remote untoward results are said to occur not infrequently.

* From the Section on Anesthesia, the Mayo Clinic.

1. Lundy, J. S.: Various Anesthetics and Certain Methods of Their Administration: Indications and Contraindications for Their Use, to be published.

2. Lundy, J. S.: Balanced Anesthesia, Minnesota Med. **9**: 399-404 (July) 1926.

3. Haggard, H. W.: The Absorption, Distribution and Elimination of Ethyl Ether, J. Biol. Chem. **59**: 737-802 (April) 1924.

There are two methods of insufflation of ether vapor, the intrapharyngeal and the intratracheal. These methods may be used in connection with inhalation methods and in that case supply a free airway. The vehicle may be either air or oxygen, not in definite proportions, with carbon dioxide as needed to regulate depth of respiration. The intrapharyngeal method consists of inserting the tubes through the nares, into or toward the nasopharynx, or through the mouth. If insufflation is to be employed, anesthesia is usually first established by inhalation. The intrapharyngeal method is often very useful when the intratracheal method is contraindicated or difficult of accomplishment. However, when circumstances permit, the intratracheal method is usually to be preferred. Good technic for intratracheal anesthesia has been described by many authors; for instance, Flagg's [4] method of using a flexible metal intratracheal tube, Guedel and Waters' [5] method of using a rubber tube with an inflatable cuff which closes the trachea completely outside the tube, and the usual technic, which consists of using a hard rubber catheter. Recently, Magill [6] has described a method in which a soft rubber tube is employed. This method is superior in most instances to any other. The tube usually can be passed through the nose and into the trachea after the larynx has been sprayed with a local anesthetic, and light general anesthesia has been induced. The patency of the airway is maintained, with the result that breathing is quiet, relaxation is facilitated, and administration of the agent or agents is made easy. Moreover, the anesthesia is under positive control, as is the pulmonary ventilation. With the aid of the laryngoscope, the tube may be passed by way of the mouth if the nasal route is not available. One of the principal contraindications to use of this method is the presence of inflammatory diseases of the respiratory tract.[7]

Many methods for administration of ether by rectum have been attempted, but the best one is that described by Gwathmey [8] in 1913, in which a mixture of ether 65 per cent and olive oil 35 per cent is given. For adults the dose is about 1 fluidounce (30 cc.) of the mixture for each 20 pounds (9 Kg.) of the patient's body weight. If patients are unruly, from 1 to 2 fluidounces (30 to 60 cc.) additional may be given. For children, 5 per cent more olive oil and 5 per cent less ether should be used. For adults, preliminary medication sufficient slightly to depress the respiratory center enhances the effect of the ether and is almost as essential to the application of this method as it is undesirable in connection with the use of ether alone by inhalation. The preliminary medication may consist of two or more of the following: morphine only, morphine with magnesium sulphate given intramuscularly by hypodermic injection, a barbiturate given by mouth or by rectum, and occasionally chlorbutanol by mouth or by rectum. The usefulness of rectal anesthesia is most pronounced when the intratracheal method is not suitable; it applies, especially, to plastic operations on the head and neck. The principal contraindications with respect to the condition of the patient are colitis or other lesions of the bowel, and hypersusceptibility to morphine or other preliminary medication.

The intravenous use of ether in physiologic solution of sodium chloride has had some success, but the method is probably of limited usefulness and will not be considered here.[9]

Ether seems to be particularly useful in operations on the brain. Tonsillectomy in children is probably best done under ether anesthesia. Many surgeons find it useful for operations on the submental and submaxillary glands, or on cysts or sinuses of the thyroglossal duct. Ether is very useful also for operations on the extremities and for radical amputation of the breast. Operations in the abdomen in which relaxation is necessary and in which the patient's condition contraindicates the use of spinal anesthesia may be satisfactorily performed under ether anesthesia.

Chloroform may be administered by inhalation or insufflation. The open-drop method is the usual one employed. In this method a small amount of gauze is used on the mask and plenty of air is admitted with the vapor. It is important that anesthesia be maintained evenly. Preliminary medication is best avoided, and in the event of syncope the use of epinephrine should also be avoided. The most effective procedure is to discontinue administration of the drug and aid its elimination by some type of artificial respiration. It is maintained by certain observers that chloroform should be vaporized with oxygen rather than with air in order to obtain the best results. For this purpose, an apparatus, part of which consists of a tube which conducts the vapor to a point under the mask, is needed. In the insufflation method, the vapor is administered as has been described for ether; however, very dilute vapor, usually mixed with oxygen, is used. Chloroform is used more generally in England,[10] in Scotland and in tropical countries than in this country. Its noninflammability frequently has been the reason for its use. I feel that it is wise to avoid the use of chloroform in almost all cases because of its untoward effect on the heart and its delayed untoward effect on the liver in occasional cases. Deaths have been ascribed to its use. If it is employed, apparently the important factor in its use is slow administration of well diluted vapor. Anesthesia, relaxation and quiet breathing are usually associated with this drug. The time for recovery of the reflexes is not long.

Ethyl chloride may be used for inducing anesthesia that is to be carried out under ether, or for short periods of anesthesia required for minor surgical procedures. It should be given by the drop method, not sprayed on the mask. A few anesthetists are giving ethyl chloride by the closed method and with considerable satisfaction when the dose administered is small, when the vapor is not concentrated. Recently several sudden deaths have been reported incident to its use, but as Shields [11] has pointed out this agent is often useful if it is not contraindicated. Anesthesia is quickly produced by ethyl chloride, relaxation is not usually

4. Flagg, P. J.: Intratracheal Inhalation, Arch. Otolaryng. **5**: 394-399 (May) 1927.
5. Guedel, A. E., and Waters, R. M.: A New Intratracheal Catheter, Anesth. & Anal. **7**: 238-239 (July-Aug.) 1928.
6. Magill, I. W.: Endotracheal Anaesthesia, Proc. Roy. Soc. Med., Sect. Anaesth., pt. 1, **22**: 83-88 (Nov. 2) 1928.
7. Tovell, R. M.: Intratracheal Anesthesia, Current Res. Anesth. and Anal. **10**: 97-103 (May-June) 1931.
8. Gwathmey, J. T.: Anesthesia, ed. 2, New York, Macmillan Company, 1924, pp. 433-464.
9. Gwathmey, J. T.: Anesthesia, ed. 2, New York, Macmillan Company, 1924, pp. 628-639.
10. Rood, F. S., and Webber, H. N.: Anaesthesia and Anaesthetics, New York, William Wood & Co., 1930, pp. 109-119.
11. Shields, H. J.: Ethyl Chloride and Its Place in Anaesthesia, Canad. M. A. J. **24**: 250-254 (Feb.) 1931.

obtained, breathing is not particularly quiet, and the period of recovery is short.

Anesthesia mixtures have been used repeatedly, and apparently with satisfaction, especially in cases in which short anesthesia is required but relaxation is not particularly necessary. The alcohol-chloroform-ether mixture consists of one part alcohol, two parts chloroform and three parts ether; anesthol, ethyl chloride 17 per cent, chloroform 35.8 per cent, and ether 47.19 per cent; somnoform, ethyl chloride 35 per cent, methyl chloride 60 per cent, and ethyl bromide 5 per cent. It has been the general opinion, at least in the past, that anesthesia mixtures are no safer than their most dangerous constituents. Although these mixtures may be useful at times they are not often indicated provided other agents that seem safer can be used to produce equivalent results.

There are two methods of administration of gaseous anesthetics: inhalation and insufflation. Inhalation is more generally used. More commonly the apparatus used consists of a machine the breathing bag of which is connected with the patient's respiratory structures by means of a mask and a breathing tube that is at least 2.5 cm. in diameter. There are many special arrangements. One of the most interesting and most economical of these is Waters'[12] method of using soda lime in a canister between the mask and the breathing bag. When this device is used, no more of the anesthetic agent need be added after the patient is anesthetized; only oxygen is added to the mixture, and this, after being converted to carbon dioxide by the patient, is absorbed by the soda lime. In this technic a metal airway is important in aiding free breathing. Insufflation is probably best carried out by using Magill's intratracheal tube, although a nasal mask is more commonly used.

The valuable agent nitrous oxide is widely used. It is not inflammable, is not particularly unpleasant to inhale, and is not irritating to the lungs. It is especially useful for short, minor operations, and for operations in which relaxation is not necessary. In administration of this agent, more than others, preliminary medication should be adequate. Nitrous oxide is frequently resorted to when other general anesthetic agents seem contraindicated. Anesthesia and analgesia both may be produced by it. Relaxation usually is not obtained and breathing is not quiet. Reflexes return quickly. Immediate and remote untoward results should not occur.

Ethylene, when its inflammability does not contraindicate its use, is fully as valuable as nitrous oxide, if not more valuable. Twice as much oxygen may be administered with ethylene as with nitrous oxide and equivalent anesthesia and also considerable relaxation may be obtained. Immediate and remote untoward results should not occur except through the inflammability of the agent. This is a real danger, although it probably has been overemphasized.[13]

With either nitrous oxide or ethylene preliminary medication is important. With both nitrous oxide and ethylene it is often advantageous to administer small amounts of ether, although some anesthetists, especially for operations in which the mouth must be kept open, have used, for mixture with gaseous anesthetics, an anesthetic mixture rather than ether. Although the mixtures seem to be useful, the risk attending their use is probably greater than that of ether. However, since medicinal carbon dioxide has been made available for use with gases there has been less necessity for the admixture of anesthetic mixtures. Gases such as acetylene and cyclopropane allow for using more oxygen than either ethylene or nitrous oxide, but thus far difficulties have occurred incident to their use, and for this reason further comment on them will not be made at this time.

For operations on the brain, the gases usually are less satisfactory than other anesthetics, although in such operations as mastoidectomy they are probably most strongly indicated. In operations on the thyroid gland the gases are very useful and often are indicated. They may be used to good advantage, also, in operations on the extremities. However, they are particularly valuable in operations within the thorax, such as thoracoplasty, and in operation on the lungs. The gases may be mixed with varying amounts of ether so that their use may be extended to most of the operations on the abdomen and on the perineum.

Nonvolatile Agents.—At one time or another almost all of the hypnotic, sedative and soporific analgesic agents have been used in alleviating suffering during surgical procedures. I shall mention and consider a few of them that seem to me to be useful. Morphine has probably been more generally used than most of the others, either alone or in combination with other agents such as scopolamine or magnesium sulphate, or in the H. M. C. combination, which consists of hyoscine (scopolamine), morphine and cactin. The usefulness of these agents at times cannot be questioned, but it is safe to say that moderation in the use of the opiates is justified in the light of their depressant effect on respiration and the varying susceptibility of patients to them. Ethyl alcohol, by mouth or by vein,[14] has been utilized repeatedly, and its usefulness on occasion cannot be questioned. However, the anesthetic dose of this agent does not always leave a margin of safety between it and the lethal dose. Another alcohol which has been introduced recently is tribrom-ethyl alcohol ("Avertin"[15]). It seems to me that it is much more useful than ethyl alcohol and it is becoming extensively used. This agent should be employed generally as a basic anesthetic only; that is, as one which must be supplemented by another agent. At the present time it is probable that its use should be avoided in the presence of advanced hepatic and renal disease, in pulmonary tuberculosis with cavitation, in marked bronchiectasis, in colitis, and possibly in diabetes. If it is used for old persons, only small doses should be employed. I find it advantageous to give more preliminary medication with this agent as a surgical anesthetic than with almost any other. It has been my custom to administer chlorbutanol, 10 grains (0.65 Gm.), by mouth or by rectum, a small dose of a barbiturate by mouth or by rectum (sodium *iso*-amylethyl barbiturate, from 3 to 9 grains, or 0.2 to 0.6 Gm.), and morphine $\frac{1}{6}$ grain (0.01

12. Waters, R. M.: Clinical Scope and Utility of Carbon Dioxide Filtration in Inhalation Anesthesia, Anesth. & Anal. **3**: 20-22; 26 (Feb.) 1924.

13. The Hazard of Explosion of Anesthetics, Report of the Committee on Anesthesia Accidents, Drafted for the Committee by Yandell Henderson, J. A. M. A. **94**: 1491-1498 (May 10) 1930.

14. Constantin, J. D.: General Anaesthesia by the Intravenous Injection of Ethyl Alcohol, Lancet **1**: 1247 (June 15) 1929.

15. Lundy, J. S.: The General Anesthetic Tribromethyl Alcohol (Avertin: E-107): Review of the Literature on Its Rectal and Intravenous Use, Proc. Staff Meet., Mayo Clin. Supp. 1, **4**: 370-380 (Dec. 18) 1929.

Gm.), with atropine, 1/150 grain (0.0004 Gm.), by hypodermic injection thirty minutes prior to rectal administration of tribrom-ethyl alcohol. The tribrom-ethyl alcohol is prepared as follows: With a 6 per cent aqueous solution of acacia, or with water, enough tribrom-ethyl alcohol is mixed to make the concentration of the tribrom-ethyl alcohol 3 per cent. Of this mixture 1.5 cc. is administered by rectum for each pound (0.5 Kg.) of body weight. In addition, local, regional or gas anesthesia is employed. This method is valuable in such operations as fulguration or diathermy of tumors of the nasopharynx, or in manipulations within the respiratory passages, with a bronchoscope. It is also useful in operations on the brain and spinal cord and it may be used in most operations on the neck or extremities and in radical amputation of the breast and in many intra-abdominal operations.

In the last twenty-five years, use of the barbiturates has increased.[16] The consensus is that they are most useful as hypnotics, sedatives and antispasmodics. These agents have been employed for the purpose of producing anesthesia, but the results indicate that a dose larger than that which will produce hypnosis carries with it danger which is directly proportionate to the dose. The accompanying chart has been used in other papers,[17] but it represents well the dose of a barbiturate and it is reproduced here. The desirable and untoward results of one of these substances applies to each of them. I chose a pentabarbital, sodium *iso*-amylethyl barbiturate (sodium amytal) as the type substance, because of my familiarity with it. Such a drug as sodium ethyl (1-methylbutyl) barbiturate (nembutal), a pentabarbital which is an isomer of sodium *iso*-amylethyl barbiturate, should be used in about half the dose indicated for the latter.[18] The figure is based on the intravenous use of sodium *iso*-amylethyl barbiturate, without other medication. Since the most intense effect follows its intravenous use, the safety of similar doses given by other routes may be implied. It is well to bear in mind that the effect of a barbiturate is not essentially related to the method of its administration but rather to the dose.

For infants the most convenient procedure is to give sodium *iso*-amylethyl barbiturate in a capsule by rectum, about ½ grain (0.032 Gm.) for a child less than 1 year of age; 1 grain (0.065 Gm.) for a child from 1 to 2 years of age, and about 3 grains (0.2 Gm.) for a child from 2 to 3 years of age. If the patient is old enough to swallow capsules, oral administration is satisfactory in producing hypnosis and is a satisfactory method of administering the agent if the dose is less than 10 grains (0.65 Gm.). If the dose is 10 grains (0.65 Gm.) or more I prefer the intravenous method, for this permits more accurate determination of the proper dose for a given patient. One should use a sharp needle and a solution that is not too greatly concentrated, certainly not more than 20 per cent, in administering sodium *iso*-amylethyl barbiturate intravenously. After it has been determined that the blood pressure is not subnormal, one may proceed with injection of 1 or 2 cc. each minute (2 to 5 grains; 0.12 to 0.3 Gm.), depending on the drug used. If the blood pressure is low, it is advantageous to add about 0.003 Gm. of ephedrine to each cubic centimeter of the solution of barbiturate.[19]

Barbiturates in small doses produce some analgesia but little anesthesia. Relaxation is facilitated by their use but it is not produced directly by small doses (doses corresponding to the first two black divisions in the chart). Breathing is more quiet if the barbiturates have been used than if they have not. Very small doses do not delay recovery of reflexes particularly, but large doses do retard the return of reflexes. Small doses seldom produce immediate or delayed untoward results, whereas large doses not infrequently do produce remote untoward results. I prefer to control the preoperative anxiety and fear of a patient by administering a small dose of a barbiturate at bedtime the night before operation, repeating the dose an hour before operation, and following this with a hypodermic injection of a small dose of morphine, ⅙ grain (0.01 Gm.), and atropine, 1/150 grain (0.0004 Gm.). More uniformly good results can be obtained following the use of any anesthetic agent, if the patient is brought to the operating room in a degree of sedation or hypnosis which relieves him to a large extent of apprehension. An excited, apprehensive patient requires more anesthetic than a confident, quiet patient, and those who prepare the patient for operation should bear in mind that the preoperative treatment of the patient should work toward reduction of risk from the anesthetic as well as toward reduction of risk from the operation. To this end, the patient's mental as well as physical condition should receive attention. The use of the barbiturates in anesthetic doses is not, as a rule, indicated in operations on the brain, although they have been used in anesthetic doses in operations on the extremities and for many operations in the abdomen. However, they should not be used, except in unusual cases, in doses larger than are sufficient to produce basic anesthesia.

Advances in local anesthesia run concurrently with the introduction of new agents. At present I feel that for extradural injection procaine hydrochloride when used in solutions not exceeding 1 or 2 per cent is the safest local anesthetic agent available, especially if it will produce anesthesia of sufficient duration, and so, of the many local anesthetic agents I shall consider only procaine. Two comparatively new anesthetic agents, nupercaine [20] (*a*-oxybutyl cinchoninic acid diethyl ethylene diamide hydrochloride) and pantocain [21] (butyl-aminobenzoic acid-*β*-dimethylamino-ethylester hydrochloride) produce anesthesia of long duration and may be useful in certain cases. The use of quinine and urea hydrochloride is not particularly desirable because it may produce sloughing. Both this agent and nupercaine are derivatives of quinine. Pantocain is a derivative of procaine. Ethyl chloride has been used with good results to produce local anesthesia by freezing, although some pain is usually felt.

Analgesia is produced by procaine. The amount of relaxation produced depends on the method used.

16. Lundy, J. S., and Osterberg, A. E.: Review of the Literature on the Derivatives of Barbituric Acid: Chemistry; Pharmacology; Clinical Use, Proc. Staff Meet., Mayo Clin., Supp. 2, **4**: 386-416 (Dec. 18) 1929.

17. Lundy, J. S.: Intravenous Anesthesia: Particularly Hypnotic, Anesthesia and Toxic Effects of Certain New Derivatives of Barbituric Acid, Anesth. & Anal. **9**: 210-217 (Sept.-Oct.) 1930.

18. Magill, I. W.: Nembutal as a Basal Hypnotic in General Anaesthesia, Lancet **1**: 74-75 (Jan. 10) 1931.

19. Sise, L. F.: Sodium Iso-Amylethyl Barbiturate and Spinal Anesthesia, Ann. Surg. **92**: 472-473 (Sept.) 1930.

20. Nupercaine-Ciba, J. A. M. A. **96**: 946-947 (March 21) 1931.

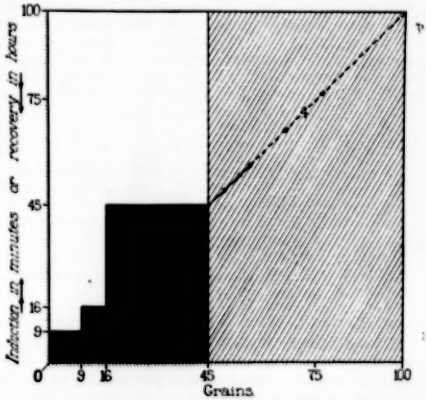
21. Ernst, Max: Erfahrungen mit dem neuen Lokalanästhetikum Pantocain, München. med. Wchnschr. **1**: 9-11 (Jan. 2) 1931. Hirsch, Caesar: Pantocain (2593), ein neues Oberflächenanästhetikum, Deutsche med. Wchnschr. **57**: 15 (Jan. 2) 1931. Schmidt, Helmut: Ein neues Lokalanaesthetikum der Novocainreihe (Pantocain), Der Chirurg, Jan. 3, 1931, number 3. Tobeck, Alfred: Unsere Erfahrungen mit dem neuen Lokalanästhetikum Pantocain als Schleimhautanästhetikum, Med. Klin. **27**: 21 (Jan. 2) 1931. Wiedhopf, O.: Pantokain, ein neues Lokalanästhetikum, Deutsche med. Wchnschr. **57**: 13-14 (Jan. 2) 1931.

Breathing is usually quiet, except when patients are excited or are suffering pain, either in the region of the operation or elsewhere than the part being operated on. Reflexes return early. Immediate and remote untoward results should not occur.

When intravenous injection is avoided, and when used by the infiltration method, in a 0.25 per cent or 0.5 per cent solution, procaine is safe. The nature of the solvent and its hydrogen ion concentration do not seem to be as important as the accurate injection of the solution into the region to be anesthetized. Administration of small doses of a barbiturate, because of its antispasmodic property, may add to the safety of local anesthesia, but certain untoward results are incident to its use when it is combined with large amounts of epinephrine. I prefer to use epinephrine in very small amounts: about 6 minims of 1:1,000 solution in 200 cc. of 0.5 per cent solution of procaine. In the average case I prefer to use not more than 100 cc. of 1 per cent, or 250 to 300 cc. of 0.5 per cent solution of procaine. Infiltration of the line of incision is valuable and may be applied by the surgeon, his assistants or the anesthetist. Because of its relative safety, anesthesia by infiltration should be used when the safety of other methods is questioned. In some instances, such as those in which infection or a malignant lesion is present, it seems advisable to avoid direct injection into the field of operation; then the most frequently used of the so-called regional methods of anesthesia may be employed, namely, field block. In this method, the field of operation is surrounded by a wall of anesthetic solution. Abdominal block anesthesia is an illustration of a type of field block. Two useful methods of regional anesthesia are brachial plexus block and sacral block. These methods of employing procaine are highly valuable and are applied by many with satisfaction and with relative safety.

The decision of whether to use spinal anesthesia, by means of injection with procaine, depends essentially on the degree of relaxation considered necessary for the operation, although pulmonary diseases, and such diseases as diabetes, also influence one to choose spinal anesthesia. This procedure, according to my experience, is best carried out by bearing in mind that (1) the rate of injection should be constant, 0.5 cc. each second, (2) the point of injection should correspond to some extent to the site of operation, but should never be higher than the interval between the twelfth thoracic and first lumbar vertebrae, (3) as a routine, the number of cubic centimeters of spinal fluid in which the dose of procaine is dissolved should be increased in proportion to the extent cephalad to which it is desired to produce anesthesia, and (4) the dose administered must be a safe one. For persons of average size, the safe dose is about 1 to 1.25 mg. for each pound (0.5 Kg.) of body weight. It is essential that readings of blood pressure be taken before, during and after administration of a spinal anesthetic. To maintain blood pressure, I have had success with intramuscular administration of ephedrine (0.025 to 0.050 Gm.), immediately before the anesthetic is administered subdurally. However, in cases of hypertension, it is best not to administer the ephedrine until just after the procaine has been deposited subdurally. In the experimental laboratory, ephedrine given intravenously, intramuscularly or subcutaneously to animals usually raised the blood pressure to a satisfactory level after it had been lowered by a spinal anesthetic, provided the pulmonary ventilation is sufficient to avoid anoxemia. When the ephedrine is given subcutaneously, its effect may be intensified by massage of the area into which it has been injected. Even when its blood pressure raising effect seems to have ceased, massage of the area in which it has been deposited will sometimes renew the ephedrine effect. Gratifying results may be obtained by administration of oxygen alone or of oxygen about 95 per cent and carbon dioxide 5 per cent during the operation, when blood pressure falls if periods of nausea occur. When these agents are insufficient to control the nausea, one may find effective administration of nitrous oxide up to 85 to 90 per cent or of ethylene 70 to 85 per cent; whether nitrous oxide or ethylene is used, the remainder is oxygen, to make 100 per cent.

Spinal anesthesia may be used with considerable satisfaction for operations on the viscera, below the diaphragm, if small doses of anesthetic solution are administered, and if the solution is used in cases in which it is not contraindicated by the advanced age of the patient, recent debility, hypotension, marked cardiac



A schematic presentation of the stages in the effect of iso-amylethyl barbiturate (sodium amytal) given intravenously, showing the relationship between the dosage and effect in the average healthy adult. The scale has a triple meaning. If one is thinking in terms of dosage, the scale may be read in grains; if one is thinking of induction, the scale should be read in minutes (the maximal time used for producing the effect); if in terms of recovery, the scale should be read in hours. The figures within the black, or shaded, area, indicate the stage of effect of the barbiturate. First is the stage of hypnotic effect, the second the stage of inebriation, the third the stage of anesthesia, and the fourth the premortem stage from overdose. Obviously only a small percentage of patients recover from the fourth, or premortem stage, if an overdose has been given. Induction is frequently hastened to but a fraction of the time indicated.

disease, or diseases of the central nervous system. The use of anesthetics intraspinally to produce general anesthesia is occasional and of course the solution must be so dilute that the motor nerves will not be paralyzed. This use of the method is not popular and is not new, but it has been advocated from time to time.[22]

Headache follows in about 5 to 10 per cent of cases, and other more untoward results of either a permanent or a semipermanent nature are reported from time to time. The immediate mortality associated with this method is probably about the same as with chloroform.

22. Koster, Harry: Spinal Anesthesia, with Special Reference to Its Use in Surgery of the Head, Neck and Thorax, Am. J. Surg. 5:554-570 (Dec.) 1928.

The lack of delayed untoward results, on the other hand, probably results in as low a total mortality as that of almost any other agent or method. Mortality or morbidity in the use of this method vary indirectly with the experience of the anesthetist with the method and the judgment that is exercised in the application of it. The use of spinal anesthesia in cases in which it is probably contraindicated will result in alarming mortality.

OBSTETRIC CASES

The problem of anesthesia in obstetrics has been on the whole best met by the use of the gases, with or without ether, beginning anesthesia when the pains become severe and gradually increasing the concentration of gas in the mixture in proportion to the severity of the pains.[23] Ether given by the open-drop method has been useful because ether is portable, and it can be administered by assistants who are not physicians. Chloroform, in the hands of experts, has been given by the open-drop method with considerable satisfaction, but I feel that its use should be avoided if possible. Ethyl chloride has no real place in obstetrics. Morphine and scopolamine have been very useful at times, but the dose used has often been larger than is safe for the baby. Tribrom-ethyl alcohol may be used, but other agents seem to be more desirable. The barbiturates, when used in moderation, are useful. Their greatest usefulness appears when they are administered in small doses by mouth, in the second stage of labor, and when they are supplemented by anesthetics given by inhalation in the third stage of labor. However, they may be given intramuscularly or intravenously, to good advantage.[24] Local anesthesia finds limited use in obstetrics and seems to be more useful in operative obstetrics than in normal labor. In such operative cases spinal anesthesia may be used, but sacral block may be preferable in that it allows manual dilation, application of forceps, episiotomy, and perineal repair, without the use of any anesthetic by inhalation.[25]

THERAPEUTIC, DIAGNOSTIC AND PROGNOSTIC USES

In the future, in medical cases, it probably will be possible to utilize anesthetic agents in differential diagnosis to a greater extent than at present. It should be possible, in some instances, to aid in diagnosis by temporary or semipermanent interruption of conduction of nerve trunks by application of long acting anesthetic agents or even by injection of alcohol.[26] For example, with spinal anesthesia it may be possible to determine whether a lesion is central or peripheral, and it may be possible to foretell the result of operation. This has been done in certain vascular diseases, sympathetic fibers have been anesthetized, and vascular changes noted while the part was infiltrated with an anesthetic agent. This has effected interruption of the nerves and has given a prognosis as to whether or not surgical section would result in improvement. Even in treatment there is a place for such procedures, as, for example, in alcoholic injection of nerve trunks for suppression of pain. There is a theoretical possibility that in certain inoperable conditions this method may become valuable, as in some types of angina pectoris.[27] In occasional cases of ileus, spinal anesthesia may not only be a diagnostic and therapeutic aid but may serve to provide anesthesia for operation.[28] In cases of hiccup, in both medical and postoperative surgical cases, much relief has been afforded by inhalation of mixtures of carbon dioxide and oxygen in which the concentration of carbon dioxide has varied from 5 to 15 or 20 per cent.[29] In some cases, administration of small amounts of a barbiturate, by mouth or otherwise, has been effective, but in some cases both the barbiturate and a mixture of carbon dioxide 10 to 15 per cent and oxygen 90 to 85 per cent have been required. In otherwise uncontrollable cases of asthma, olive oil and ether by rectum has afforded the patient rest and has been the means of bringing the patient's attacks under control.[30] In convulsive conditions, such as tetanus, poisoning by strychnine and eclampsia of pregnancy, the barbiturates, from 6 to 12 grains (0.4 to 0.8 Gm.) have been most useful. In such cases the dose of the drug must be sufficient (as shown in the chart) to produce practically complete surgical anesthesia and frequently must be repeated at intervals, as the spasms recur. In tetanus, the effect of the barbiturates may be advantageously augmented by intramuscular injection of magnesium sulphate (2 cc. of a 25 per cent solution). The barbiturates have been administered by mouth or by vein, in hypnotic or slightly larger doses, in certain forms of insanity, such as dementia praecox, for the purpose of producing a few hours of lucidity and to give the patient rest; in other cases of insanity barbiturates have been useful to bring an agitated patient under control and to assist in his transportation from one place to another and to make the nursing care less difficult.[31] In cases of insanity the dose may be repeated as conditions require. Barbiturates, especially phenobarbital, from 1½ to 2 grains (0.1 to 0.13 Gm.), have been used frequently in the control of epileptic seizures.

In alcoholism, patients on the verge of delirium tremens may be readily controlled by intravenous administration of barbiturates in doses of from 9 to 16 grains (0.6 to 1 Gm.); this may be repeated as needed. If the patient is in a critical condition, only small doses should be used. Ephedrine given intravenously with the barbiturate should be used in small doses also. Drug addicts may often be controlled during withdrawal of the drug to the use of which they are addicted, by repeated intravenous administration of barbiturates in sufficient dosage to produce the desired effect. Unfortunately, some persons of the emotionally unstable, constitutionally inferior type may become addicted to the use of a barbiturate. The indiscriminate sale of barbiturates, without prescription, by drug stores, probably will become undesirable.

OUTLOOK FOR THE FUTURE

At present much progress is being made in anesthesia, not only in methods but also in the introduction of new local and general anesthetic agents. A great deal of

23. Morehead, D. E., and Mussey, R. D.: The Oral Use of Small Doses of Sodium Iso-Amylethyl Barbiturate for Obstetrical Analgesia: Preliminary Report, Proc. Staff Meet., Mayo Clin. **5**: 278-280 (Oct. 1) 1930.

24. Moore, J. H.: Sodium Amytal in the Treatment of the Late Toxemias of Pregnancy, Am. J. Obst. & Gynec. **19**: 544-547 (April) 1930.

25. Mercker, W. R., and Bonar, B. E.: Regional Anaesthesia in Gynecology and Obstetrics, Surg. Gynec. Obst. **37**: 816-840 (Dec.) 1923.

26. Woodbridge, P. D.: Therapeutic Nerve-Block with Procaine and Alcohol, Am. J. Surg. **9**: 278-288 (Aug.) 1930.

27. White, J. C.: Angina Pectoris: Treatment by Paravertebral Alcohol Injection or Operation Based on the Newer Concepts of Cardiac Innervation, Am. J. Surg. **9**: 98-105 (July) 1930.

28. Domenech, Francisco: Action de l'anesthésie rachidienne sur le motilité intestinale: étude éxperimentale, Presse méd. **1**: 66-67 (Jan. 16) 1929. Wagner: Zur Behandlung des Ileus mit Lumbalanästhesie, Zentralbl. f. Gynäk. **48**: 1225 (July 29) 1922.

29. Sheldon, R. F.: Control of Hiccup by Inhalation of Carbon Dioxide, J. A. M. A. **89**: 1118-1121 (Oct. 1) 1927.

30. Maytum, C. K.: Bronchial Asthma: Relief of Prolonged Attack by the Colonic Administration of Ether, M. Clin. North America, to be published.

31. Bleckwenn, W. J.: Sodium Amytal in Certain Nervous and Mental Conditions, Wisconsin M. J. **29**: 693-696 (Dec.) 1930.

progress in the near future may be looked for confidently. This is due partly to change in the pharmacologic conceptions of the toxicity and effects of drugs. That is, a toxic drug may be effective in very small doses and may be used with considerable safety. In the last two years, several local anesthetic agents which produce anesthesia of long duration have been synthesized and many more will appear [32] in the near future. New methods have made the older general anesthetics more useful than heretofore and, with the introduction of still other methods, no doubt some of the older drugs will regain their former popularity. Great strides have been made in preliminary medication, and more progress may be expected along this line.

Committee on Foods

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

VITAMIN D BOND BREAD

Manufacturer.—General Baking Company, New York City.

Description.—A white bread prepared by the straight dough process containing an added special nutrient vitamin D equivalent to that of three teaspoonfuls of standard cod liver oil for each 24 ounces of baked bread (140 vitamin D units defined by the Council on Pharmacy and Chemistry, New and Nonofficial Remedies, 1931, p. 414).

Manufacture.—The dough ingredients, standard and short patent flours, yeast, water, sucrose, salt, shortening, sweetened condensed milk, skim milk solids, malt syrup and vitamin D (irradiated ergosterol) in vegetable oil solution are mixed in a high speed mixer. The dough is fermented under definite temperature and humidity conditions and then machine divided into pieces of definite weight. The dough pieces are rolled into balls, passed through a traveling proofer and molding machine, panned and further fermented. The risen dough loaves are baked in a traveling oven from forty to forty-five minutes. The baked loaves are cooled and wrapped in dust and moisture proof wrappers.

Chemical Composition.—

(proximate analysis)	per cent
Moisture (entire loaf)	36.6
Ash	1.45
Fat (ether extract)	1.0
Protein (N × 5.7)	8.1
Crude fiber	0.4
Carbohydrates (by difference) other than crude fiber	52.5

Calories.— 2.51 per gram
71.2 per ounce

Vitamins.—The vitamin D (irradiated ergosterol) is incorporated in this bread under license granted by the Wisconsin Alumni Research Foundation. A vegetable oil solution of vitamin D standardized by biologic tests is added to the bread dough in quantities guaranteed by the Pediatric Research Foundation of Toronto to be equivalent to 140 D units, or 3 teaspoonfuls of standard cod liver oil per 24 ounces of bread. The baked bread is continuously assayed by them for verification. The D units are those defined by the Council on Pharmacy and Chemistry of the American Medical Association (New and Nonofficial Remedies, 1931, p. 414).

Claims of Manufacturer.—Vitamin D Bond Bread richly provides the valuable food essential known as vitamin D. This bread is an adequate food source of vitamin D for normal nutrition.

32. Essex, H. E., and Lundy, J. S.: Experiments with Anesthetics: I. A Method of Testing Local Anesthetics by Cistern Puncture of Frogs, Proc. Staff Meet., Mayo Clin. **6**: 227-228 (April 15) 1931.

LACTOGEN

Manufacturer.—Nestle's Milk Products, Inc., New York.

Description.—A spray-dried modified cow's milk containing added milk-fat and lactose. The prescribed dilution approximates human milk in percentages of milk-fat, protein, lactose and total minerals and in dispersion of the fat in fine globules.

Manufacture.—The milk used is collected from tuberculin tested healthy cows under prescribed conditions and in accordance with definite regulations which are enforced by the company's inspectors. The milk received at the plant is accepted only after showing satisfactory odor and certain chemical tests. Bacteria plate counts are made daily as a further check on quality.

The milk is modified by the addition of cream from fresh milk and of lactose. The mixture is pasteurized, concentrated under reduced pressure, homogenized by forcing under high pressure through small apertures, cooled and is sprayed into an atmosphere of hot filtered air in a drying chamber. The milk solids collect as a fine powder on the chamber floor and are continuously removed and rapidly cooled. The cool powder is packed in an atmosphere of nitrogen gas in hermetically sealed cans to insure the keeping quality.

The processes of manufacture are carried out at moderately low temperatures to minimize the destructive action of heat on the vitamin content. The equipment is kept in a strictly sanitary condition.

Chemical Composition.—

(proximate analysis)	per cent
Moisture	2.0
Ash	3.5
Protein (N × 6.38)	16.2
Fat (ether extract)	25.0
Lactose (by difference)	53.3

Calories.— 5.02 per gram
142. 6 per ounce

Micro-Organisms.—The average bacteria count is between 2,000 and 2,500 per gram by the standard plate method of the American Public Health Association. Hemolytic streptococci are reported absent.

Claims of Manufacturer.—Lactogen is intended for infant feeding. The water mixture prepared in accordance with the prescribed directions approximates human milk in the percentages of fat, protein, carbohydrates and total mineral salts. Because of the homogenization process the fat is dispersed in fine globules. The product has a low bacteria count and is free from pathogenic organisms.

UFFELMANN'S GOLDEN KRUST BREAD

Manufacturer.—The Uffelmann Baking Company, Cincinnati.

Description.—A white bread made by the sponge dough method.

Manufacture.—The sponge dough ingredients, 70 per cent patent flour of Northwest wheat, water, yeast, malt syrup and a yeast food containing calcium sulphate, ammonium chloride, sodium chloride and potassium bromate, are mixed in a high speed mixer. The sponge dough is fermented for from four to five hours, after which are added flour, water, salt, lard, sweetened condensed skimmed milk and a partially hydrolyzed starch to make the completed dough which is cut into pieces of desired weight by machine. The pieces are fermented for a short time, molded by machine into loaf form and panned. The panned dough is further fermented and then baked for from thirty to thirty-five minutes in a traveling oven with automatic steam and temperature regulation. The cooled loaves are wrapped in wax-paper.

The factory, equipment and storage rooms for the materials used are kept in strictly sanitary condition.

Chemical Composition.—

(proximate analysis)	per cent
Moisture (entire loaf)	35.8
Ash	1.66
Fat (ether extract)	3.1
Protein (N × 6.25)	9.5
Crude fiber	0.3
Carbohydrates (by difference) other than crude fiber	49.6

Calories.— 2.64 per gram
75.0 per ounce

Claims of Manufacturer.—A bread of good quality.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET - - - CHICAGO, ILL.

Cable Address - - - - "Medic, Chicago"

Subscription price - - - - - Seven dollars per annum in advance

Please send in promptly notice of change of address, giving both old and new; always state whether the change is temporary or permanent. Such notice should mention all journals received from this office. Important information regarding contributions will be found on second advertising page following reading matter.

SATURDAY, JULY 4, 1931

THE FEDERAL FOOD AND DRUGS ACT: 1906-1931

A quarter of a century ago, on June 30, 1906, President Theodore Roosevelt signed the Food and Drugs Act specifically designated "for preventing the manufacture, sale, or transportation of adulterated or misbranded or deleterious foods, drugs, medicines and liquors, and for regulating traffic therein, and for other purposes." This federal measure is popularly known as the Pure Food Law. It has had a wholesome effect that can scarcely be realized today by persons who are not familiar with the conditions that prevailed in the industries and marketing procedures at the beginning of the twentieth century. The situation has been portrayed vividly by Mark Sullivan[1] in the volume of "Our Times" entitled America Finding Herself. The chief of the Food and Drug Administration, which now enforces the law, commenting on a quarter century of regulatory work under the statute, recently remarked:

> Before the law was passed, the food and drug industry picture was in the chromo stage. As the result of crude methods in food manufacturing, the buyer suspected commercially prepared foods—and with reasons. The medical quack and the patent medicine charlatan plied their trade from the itinerant buckboard and the mixing tub. Swampweed nostrums, worthless in the treatment or cure of disease, were sold everywhere. Commercially packed foods were usually adulterated, sometimes with dangerous chemicals, as ingredients of dyes and preservatives. So unethical were the practices of some food manufacturers and dealers that the many honest producers had little opportunity of profiting by the sale of quality goods.

The American Medical Association, through the Council on Pharmacy and Chemistry, has been a pioneer in its efforts to protect the medical profession and the public against fraud, undesirable secrecy and objectionable advertising in connection with proprietary medicinal articles. Its efforts have been greatly facilitated by the passage and enforcement of the Food and Drugs Act. More than 18,000 legal actions, taken under the law, have contributed to the satisfactory reformation of American manufacturing processes and sales methods. The governmental forces have tended to compel the use of truthful statements on labels and insure the purity of the contents of what were once mysterious packages. It may be questioned whether such enforcement—admittedly a safeguard to protect the consumer from economic fraud as well as from bodily harm—has been more effective for the public welfare than has the unremitting exposure of quackery in relation to the health of the people. Such exposés as have been made by the Bureau of Investigation of the American Medical Association during the last quarter century have been of incalculable value. Mark Sullivan has cleverly pointed out that, in the "patent medicine" business of a generation ago, the essential art was not medicine nor chemistry. The fundamental genius for it, he remarks, was psychologic. It consisted of skill in playing on the credulity of the simple minded and the trusting. The "patent medicine" manufacturers, Sullivan adds, made an art of describing the symptoms of disease in such a way as to terrorize the reader of their pamphlets and advertisements into believing he had one or more of the ailments they pretended to cure, and in describing their cure-alls in terms to convey the conviction of hope. The psychology the the American mind has not changed greatly in the last twenty-five years. An occasional charlatan introduces some new stunt or elaborates his finesse and his technic, but in general the same old hokum pulls them in and the same old tricks sell them.

The improvement in package and product in the case of drugs as well as foods has been noteworthy. The manufacturing trade itself is beginning to accept the advantage of decency in business. The laws, however, do not restrain the advertiser who has little regard for the truth or a conscience applied to his methods of sales promotion. A bottle of colored sugar water or a cereal food may be correctly labeled and quite harmless. The law may be meticulously observed; yet the billboards or newspaper and magazine pages may herald the medicinal virtues of such an inert product with blatant charlatanry—and with immunity to the advertiser. On this account, among others, the American Medical Association organized the Committee on Foods to take cognizance of the published claims for dietary products, so that, in addition to misbranding and adulteration, misrepresentation also may be averted.

The coming of age of the Food and Drugs Act should not be allowed to pass without some reference to the dominant figure in the crusade for pure foods and drugs, the late Dr. Harvey Washington Wiley. He was chief chemist of the U. S. Department of Agriculture during the period of the fight for the federal act, and until 1912 "a very mountain among men, a lion among fighters." The New York *Sun* described him as the "chief janitor and policeman of the people's insides." The movement for reform that he helped to start deserves unqualified commendation. The forces on the fighting line deserve congratulation. There is still much to be accomplished. Vigilance must never be relaxed.

1. Sullivan, Mark: Our Times: The United States, 1900-1925: II. America Finding Herself, New York, Charles Scribner's Sons, 1927.

THEELIN AND THEELOL

The announcement three years ago of the separation of a potent ovarian hormone from the follicular fluid by Allen and Doisy [1] marked a distinct step in the direction of progress. The product had an estrus-promoting activity that could readily be assayed on suitable small animals, the potency thus being definable in terms of selected units. During the anabolic phase of the estrous cycle in rodents, as Morse [1] has recently pointed out anew, the epithelium of the vagina grows to a considerable thickness and a cornified layer similar to that in the epidermis develops. During the catabolic phase, the outer layers of this epithelium degenerate and are removed by leukocytic action. These changes provide a definite succession of cell types in the vaginal lumen, each one of which is characteristic of a certain phase of the ovarian cycle. For example, round epithelial cells with leukocytes are present in the adult vagina when the ovaries contain only immature follicles, as in the diestrous stage or subsequent to bilateral ovariectomy. On the other hand, squamous epithelial cells are found when the ovaries contain mature follicles. Since these cyclic phenomena in the genital tract cease after bilateral ovariectomy, their induction by the injection of ovarian extracts constitutes a positive test for the efficiency of these extracts.

Other investigators also had been engaged in the study of ovarian hormones, and the medical journals carry accounts of a considerable number of products, each designated by some distinctive trade name. A new era was ushered in when Doisy of St. Louis announced, at the thirteenth International Physiological Congress, held in Boston, in 1929, the isolation of a hormone in crystalline form. This was followed promptly by somewhat confirmatory reports from various sources. The work of Butenandt, Laquer, d'Amour and Gustavson, Marrian, Wieland and their respective associates, among others, deserves mention in the register of merit. The Council on Pharmacy and Chemistry of the American Medical Association adopted the name "theelin," selected by Doisy, as the nonproprietary designation to be used in New and Nonofficial Remedies for the ovarian hormone made by the process of Doisy. The active substance is excreted into the urine, from which it is now most conveniently prepared. Last year Doisy [2] and his co-workers recorded the discovery of a second estrogenic substance in the urine of pregnant women. It is a triatomic alcohol for which the name theelol has been proposed. Injections of minute quantities cause opening of the vagina of sexually immature rats and mice. Administration to spayed adult rats produces characteristic cornification of vaginal cells. According to the latest conclusions,[3] theelin is approximately twice as active as theelol in adult spayed rats, whereas theelol is six or seven times as active as theelin in immature female rats. With spayed rats, assays of several preparations of theelin have given 3,000 rat units per milligram; of theelol, 1,500 rat units. It would seem, according to Doisy and Thayer,[3] that two different substances effective in producing changes in the genitalia of female rats must exist in the extracts of the urine of pregnant women. It is too early to speculate on the possible uses of these substances.

1. Allen, Edgar; and Doisy, E. A.: An Ovarian Hormone, J. A. M. A. **81**: 819 (Sept. 8) 1928. Allen, Edgar; Pratt, J. P., and Doisy, E. A.: The Ovarian Follicular Hormone, ibid. **85**: 399 (Aug. 8) 1925. A partial review of some of the early work is given by Morse, A. H.: Recent Studies on the Rôle of the Hypophyseal and Ovarian Hormones in the Physiology of Reproduction, Yale J. Biol. Med. **3**: 397 (May) 1931.

2. Doisy, E. A.; Thayer, S. A.; Levin, Louis; and Curtis, J. M.: A New Triatomic Alcohol from the Urine of Pregnant Women, Proc. Soc. Exper. Biol. & Med. **28**: 88 (Oct.) 1930.

3. Doisy, E. A., and Thayer, S. A.: The Preparation of Theelol, J. Biol. Chem. **91**: 641 (May) 1931.

4. Wells, H. G.: Chemical Pathology, Philadelphia, W. B. Saunders Company, 1925.

5. von Mering, Josef; and Minkowski, Oscar: Arch. f. exper. Path. u. Pharmakol. **26**: 371, 1889; **31**: 85, 1893.

6. Joslin, E. P.: Treatment of Diabetes Mellitus, Philadelphia, Lea & Febiger, 1928.

OSCAR MINKOWSKI

The death of Prof. Oscar Minkowski in Berlin, June 18, at the age of 73, removes the last of the research team, including Prof. Josef von Mering, that contributed the fundamental discoveries on which the modern knowledge of the cause and treatment of diabetes mellitus is based. Von Mering had been a pupil of Frerichs and Hoppe-Seyler; Minkowski received some of his early scientific inspiration from the German clinician Bernard Naunyn, himself an ardent student of diabetes. The occasional coincidence of diabetic symptoms and lesions of the pancreas had been reported more than a century ago.[4] Bouchardat had formulated the belief that pancreatic disease is the cause of diabetes; but, as Wells [4] has pointed out, his views were uncongenial to the physicians of his time. The experiments of von Mering and Minkowski,[5] working in Strasbourg on dogs, definitely demonstrated the interrelation of the pancreas and carbohydrate utilization. Without a pancreas, animals promptly evinced a severe glycosuria and presented all the characteristic symptoms of diabetes. Minkowski reached the conclusion that "pancreatic tissue provides a 'something,' separate from the pancreatic juice—an internal secretion of the pancreas—the lack of which is responsible for the symptoms of diabetes."

These classic researches paved the way for many important observations: for a knowledge of the behavior of all the foodstuffs—not merely the carbohydrates—in pancreatic diabetes; for an understanding of diabetic coma and its concomitants; above all, it paved the way for the discovery of insulin and all that this has meant for human welfare as well as scientific progress. Perhaps no greater tribute to the worth of Minkowski's discoveries can be made than is embodied in these recently published words of Joslin,[6] himself a distinguished student of diabetes: "The outstanding features of the diabetes of today are the prolongation of

the lives of diabetic children and the replacement of coma by arteriosclerosis as a cause of death. Diabetes is no longer fatal and the diabetic has ceased to die of his disease. . . . In the Naunyn era children seldom survived the disease for more than two years, but now (1928) already their duration of life has trebled and their physical appearance is assurance for the future. . . . It will not be strange if diabetes largely disappears from the death certificate."

Diabetes need no longer kill its thousands and incapacitate a great army of its victims. Minkowski's contributions to this beneficent outcome serve to remind us of the part played by experiment—notably by experiments on animals—in modern medicine. Contrasting conditions today with a few generations ago, Sir F. G. Hopkins,[7] president of the Royal Society of London, has pointed out that more recently the practice of medicine has been based on the results of experiments as well as on observation, and its progress has been rapid. It will be found that many laymen (and, it may be added, not a few physicians) who have not given thought to the matter vaguely assume that the progress of medical knowledge still depends solely or mainly on the accumulation of experience gained at the bedside. The truth, Sir Frederic adds, that untiring labor in scores of scientific laboratories has been the chief factor in the rapid progress of recent years has not yet come home to the public. Experience at the bedside and the habit of close observation, he reminds us, are indeed essential for the making of a successful physician. These and these alone can qualify him for the successful application of knowledge to the relief of human suffering; but history shows that the knowledge itself grew slowly when bedside observations were its chief source. Minkowski, who became a distinguished German clinician and a teacher of renown, was one of the pioneers who ventured to apply the modern experimental method to medical research.

Current Comment

THE LIVER AND VITAMIN A

The normal coloring matter of some of the natural foods has acquired a new and unexpected significance through the discovery that carotene, the familiar yellow pigment of carrots, yellow corn, sweet potatoes, egg yolk and a variety of other foods, functions as a precursor of the indispensable vitamin A. The plants manufacture carotene; the animals that eat foods containing it profit accordingly thereby. Carotene is converted into vitamin A in the animal organism. The colorless yet potent cod liver oil derives its vitamin A indirectly from carotene-containing minute organisms consumed by the fish. It has recently been demonstrated by Moore,[8] to whom we owe fundamental researches in this field of study, that when products rich in carotene are fed to animals their liver oils invariably contain vitamin A at extremely high concentrations, the oils themselves in several cases giving higher values than typical cod liver oil concentrates. This seems to be true for various species. Capper, McKibbin and Prentice[9] of Queen's University, Belfast, for example, have observed that the vitamin A content of hen liver oil is high. A new dietary virtue is thus imparted to the delectable chicken livers. In Moore's tests, indications of the presence of vitamin A were usually shown by the "storage" fats of the body, the concentration per unit of fat, however, being not more than about 1 : 100,000 of the concentration found in the liver oils. Similar indications were given also by the lung and kidney oils of certain animals, but in general negative results were obtained in all organs other than the liver. He has reached the important conclusion that the conversion of carotene to vitamin A probably takes place in the liver, that the efficiency of the conversion is by no means quantitative, and that the liver plays an important part in the regulation of the concentration of the vitamin throughout the remainder of the body.

FUNCTION OF THE KIDNEY GLOMERULI

It would be an agreeably uncomplicated explanation of renal function if proof were available for the hypothesis that the kidneys act as simple filters through which the diffusible components of the blood can readily pass. An outlet for water, salts, urea and other catabolites would thus readily be at hand. The minute structure of the kidneys with its mazes of glomeruli and complex tubules itself suffices to dispel such expectations. Furthermore, the composition of the urine cannot be reconciled directly with any hypothesis of mere filtration and diffusion. Some of the components of the secretion, such as urea, are eliminated in a concentration far greater than that in which they exist in the blood. Accordingly, a diversity of theories have been formulated to account for the known facts. Some of the views postulate that predominantly water passes the glomerular filters, the rest of the urinary constituents being secreted by the tubules. The contrasting explanation transfers the chief eliminatory function to secretory activities in the glomeruli, reserving for parts of the tubules the possibility of a partial reabsorption of the glomerular transudate, with the urine as a resultant fluid. Modern microtechnic has made it possible to attempt an experimental answer to the conflicting questions, for it has become possible in some species to remove the glomerular urine before it traverses the tubules. A comparison of it with the blood plasma from which it is derived should thus provide direct evidence as to the nature of the glomerular function. Experiments by Walker and Elsom[10] indicate clearly the identity of urea concentration in the two fluids and,

7. Hopkins, F. G.: Medicine and Experimental Science, in Science and the Nation, Cambridge University Press, 1917.
8. Moore, Thomas: Vitamin A and Carotene: VII. The Distribution of Vitamin A and Carotene in the Body of the Rat, Biochem. J. **25**: 275, 1931.
9. Capper, N. S.; McKibbin, Isobel M. W., and Prentice, J. H.: Carotene and Vitamin A: The Conversion of Carotene into Vitamin A by Fowl, Biochem. J. **25**: 265, 1931.
10. Walker, A. M., and Elsom, K. A.: A Quantitative Study of the Glomerular Elimination of Urea in Frogs, J. Biol. Chem. **91**: 593 (May) 1931.

further, support the view that the glomerular function is one of filtration. The difference between the concentration of urea in the plasma of the frog—the species studied—and that in the bladder urine (about fivefold) is readily explainable on the basis of what is already known concerning reabsorption of water from the renal tubule. In the light of the data now available it is not necessary to assume tubular secretion of urea to account for the renal elimination of this substance in the species referred to. It is amazing to learn the conditions under which such tests are made. The technic involves the use of as little as 0.05 cubic millimeter (not centimeter) of fluid containing no more than 0.000003 mg. of urea nitrogen. One is inclined to compliment investigators who can satisfactorily carry out chemical analyses with reasonable precision on such minute quantities of materials.

Association News

PHILADELPHIA SESSION

American Medical Golfing Association

At the seventeenth Annual Meeting of the American Medical Golfing Association, held in Philadelphia, June 8, Dr. Frank A. Kelly of Detroit was elected president; Dr. Homer K. Nicoll of Chicago, first vice president, and Dr. John Welsh Croskey of Philadelphia, second vice president.

Twenty-four states were represented at the tournament held in Philadelphia. High gross was won by Dr. L. B. Spake of Kansas City, Kan., with a score of 248. Other high scores were those of Dr. W. J. Wilson, Detroit, 232, and Dr. Rudolph Bloom, Philadelphia, 231. The "Will Walter Trophy" or Association Championship was won by Dr. George J. McKee of Pittsburgh with a score of 167; the "Detroit Trophy" for handicap championship, by Dr. S. L. Baysinger, Rolla, Mo., with a score of 145; the "St. Louis Trophy" for choice score handicap, by Dr. G. C. Glenn, State College, Pa., with a score of 82; the "Golden State Trophy" for the 18 hole championship, by Dr. S. E. Stokes, Moorestown, New Jersey, who won the toss in a tie of 82 with Dr. George Wilson of Philadelphia; the "Ben Thomas Trophy" for the 18 hole handicap championship, by Dr. W. Albert Cook, Tulsa, Oklahoma, with a score of 73; the "Minneapolis Trophy" for Fellows over 60, by Dr. E. S. Ferguson of Oklahoma City with a score of 73; the "Wendell Phillips Trophy" for past presidents, by Dr. Charlton Wallace of New York with a score of 77, and the "Philadelphia Trophy," donated this year by the mayor of Philadelphia, by Dr. Robert A. Keilty of Washington, D. C., with a score of 71.

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday and 10:30 on Saturday over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

July 6. Children Who Might Live.
July 11. How Sensitive Are You?

Five minute health talks may be heard over the Columbia Broadcasting System on Monday, Wednesday, Thursday and Saturday from 1 to 1:05 p. m., Chicago daylight saving time.

The program for the week is as follows:

July 6. The Poison Ivy Pest.
July 8. Clean Water.
July 9. Water Casualties.
July 11. How to Care for Snake Bites.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CONNECTICUT

Society News.—The Connecticut State Department of Health is conducting its second mental hygiene institute, June 29-July 18, in Hartford Seminary Foundation, Hartford. Dr. James L. McCartney, chief, division of mental hygiene, state department of public health, Hartford, is director of the course, which is for the benefit of trained workers in nursing, education and social welfare.——The annual meeting of the eye, ear, nose and throat section of the Connecticut State Medical Society, May 21, in Bridgeport, was addressed by Drs. Lee M. Hurd on "Some Phases of Chronic Nasal Accessory Sinusitis" and John H. Dunnington, New York, "Hyperphoria: Its Etiology, Diagnosis and Treatment." Dr. Merritt H. Merriman, Waterbury, was elected chairman, Dr. Arthur N. Alling, New Haven, vice chairman, and Dr. Walter L. Hogan, Hartford, secretary-treasurer, reelected.

DISTRICT OF COLUMBIA

Personal.—Dr. Clinton Hart Merriam, founder and director for twenty-five years of the United States Biological Survey, will be awarded one of three Roosevelt Medals for Distinguished Service for 1931, it was announced, June 23, by James R. Garfield, president of the Roosevelt Memorial Association. The medals, which are given annually in three of twelve fields, will be presented on October 27, the anniversary of Roosevelt's birth. Dr. Merriam, who has conducted many biologic and ethnologic explorations in the West, was chosen for distinguished service in advancement of the study of natural history. A graduate of Columbia University College of Physicians and Surgeons, New York, in 1879, Dr. Merriam practiced medicine until 1885.

Dr. McKinley Appointed Dean at George Washington.—Dr. Earl Baldwin McKinley, professor of bacteriology in the Columbia University College of Physicians and Surgeons and director of the School of Tropical Medicine of the University of Porto Rico since 1928, has been appointed dean of George Washington University School of Medicine, Washington. He succeeds Dr. William Cline Borden, who retired, June 1, after twenty-two years' service. Dr. McKinley was graduated from the University of Michigan Medical School in 1922 and has taught in his alma mater and at Baylor University School of Medicine, Dallas, Texas. In 1927-1928 he was field director for the Rockefeller Foundation in the Philippine Islands and a member of the advisory committee to the governor general for the control of leprosy. The honorary degree of doctor of science and the title of professor emeritus of medicine were conferred on Dr. Borden, the retiring dean, at the university commencement.

GEORGIA

State Offers Course for Physicians.—The state board of health, in cooperation with the University of Georgia and Emory University, sponsored a course of study for physicians, June 29 to July 3, in Swainsboro. No fee was charged. Similar courses will be offered in Athens, Waycross, Albany, Macon and Rome, Dr. Josephus J. P. Bowdoin, deputy commissioner of public health, announced.

Chattahoochee Valley Physicians to Meet.—More than fifty papers will be presented at the thirty-first annual session of the Chattahoochee Valley Medical and Surgical Association, which is to be held at Radium Springs, near Albany, July 14-16. A symposium on heart disease will occupy the greater part of the first morning's program. Among other subjects to be discussed are "Hyperinsulinism and Dysinsulinism," by Dr. Seale Harris, Birmingham, Ala.; "Foreign Protein in the Palliative Treatment of Inoperable Cancer," Dr. Frank K. Boland, Atlanta; "Spider Poisoning," Dr. Henry E. Palmer, Tallahassee, Fla.; "Varied Manifestations of Allergy," Dr. Clarence K. Weil, Montgomery, Ala., and "The Aschheim-Zondek Test as an Aid in Differentiating Early Pregnancy from Other Pelvic Conditions," Dr. Benjamin T. Beasley, Atlanta. Dr. Charles W. Roberts, Atlanta, is president of the association.

ILLINOIS

Licenses Revoked.—Acting on the recommendation of the Illinois Medical Examining Committee, the director of registration and education revoked the licenses of the following physicians, May 23:

Dr. Ethel Rice, Chicago. Dr. Otto W. Hesse, Chicago.
Dr. Jesse Madison Stilson. Dr. James F. Murphy, Winslow.

Personal.—Physicians of Logan County gave a dinner, June 4, in Lincoln, for three physicians who have spent fifty years or more in practice: Drs. William V. Guttery, who has practiced in Middletown since 1881; Charles Rembe, Lincoln, and William Edgar McClelland, Beason. A set of clinical thermometers and a leather card case were given to each.

Society News.—Dr. Harry A. Oberhelman, Chicago, spoke before the Peoria City Medical Society, June 16, on "Results of Personal Studies of 600 Breast Tumors." The society had its annual picnic, June 25, at Michell Farm Sanitarium.——Dr. Joseph F. Bredeck, St. Louis, spoke on "Diagnosis of Tuberculosis" before the St. Clair County Medical Society, June 4.——Drs. Randolph O. Stites, Industry, and Frank P. Norbury, Jacksonville, among others, discussed undulant fever at the meeting of the McDonough County Medical Society, Macomb, June 9.——Drs. Sumner L. Koch and Francis J. Gerty, Chicago, addressed the La Salle County Medical Society, Wedron, June 17, on "Infections of the Hand" and "Emotional Changes as Symptoms of Mental Disease," respectively.

Chicago

Society News.—Dr. Samuel Kaplan, among others, spoke on "Blood Chemistry Study in Normal Pregnancy and Eclamptogenic Toxemia" before the Chicago Gynecological Society, June 19.——Dr. Edwin M. Miller was elected president of the alumni association of Rush Medical College at its annual reunion, June 16, and Dr. Charles A. Parker, secretary. ——Dr. Herman L. Kretschmer was elected president of the Chicago Medical Society, May 16, and Dr. Charles H. Phifer, secretary.

Hospital News.—A new department for children's diseases was opened at St. Bernard's Hospital, May 12; it has a capacity of thirty beds.——The McElwee Memorial Home for Destitute Crippled Children, on the University of Chicago Midway, was recently dedicated. —— The Gertrude Dunn Hicks Memorial Hospital, the fourth unit for the care of sick children and the study of their diseases at the University of Chicago, was dedicated, June 22. The hospital, located near Billings Memorial hospital, has 50 beds, making the hospital facilities of the Midway medical center almost 600 beds. It was made possible by a gift of $300,000 from Mrs. Gertrude Dunn Hicks.

Graduate Course in Ophthalmology.—A graduate course in ophthalmology is to be given by members of the faculties of the four medical schools in Chicago, beginning September 1, to run for a year. Lectures and clinics will be held at the four universities and ten hospitals on a rotating schedule. Didactic instruction will be given from 8 to 9:30 a. m. and from 5 to 6:30 p. m.; clinical instruction will be given between 10 a. m. and noon and between 2 and 4 p. m. The course is limited to twelve students. The fee is $1,000, of which $100 is to be paid on application. Further information may be obtained from Dr. Richard C. Gamble, secretary, 30 North Michigan Avenue, Chicago.

IOWA

Society News.—A symposium on tuberculosis was conducted before the Crawford County Medical Society in Denison, April 2; the speakers were Drs. Benjamin Carl Russum, Maurice C. Howard and William L. Sucha, all of Omaha.—— Dr. Cluley C. Hall, Maynard, addressed the Fayette County Medical Society, April 6, in Fayette, on "Diseases Transmitted to Man from the Animal World."——The Johnson County Medical Society was addressed, April 1, in Iowa City, by Drs. Everett D. Plass and Andrew W. Bennett on "Physiological Variations in the Total White Cell Count" and "Compression Fractures of the Vertebra," respectively.—— Dr. Raymond S. Grossman, Marshalltown, among others, addressed the Marshall County Medical Society, April 7, at LeGrand, on "Treatment of Mental Cases."——Dr. William H. Gibbon, Iowa City, addressed the Scott County Medical Society in Davenport, April 7, on "Newer Aspects of X-Ray Diagnosis of Gastro-Intestinal Lesions."——A symposium on goiter was presented by Drs. Thomas F. Thornton and John L. Kestel before the Waterloo County Medical Society, April 7.—— Dr. Gordon F. Harkness, Davenport, addressed the Webster County Medical Society, April 21, on "External Eye Conditions in General Diagnosis." Dr. Edward T. Evans, Minneapolis, addressed the society, March 31, on "Interpretation and Treatment of Common Back Injuries," and Dr. Norman F. Miller, Ann Arbor, Mich., March 10, on pelvic infections.

MARYLAND

Health Department Survey.—Dr. Joseph W. Mountin of U. S. Public Health Service began a survey of the Baltimore City Health Department, May 20, at the request of Dr. Charles Hampson Jones, commissioner of health of Baltimore. It will include an attempt to define the boundaries between public health work and private medical practice, at the suggestion of Dr. Louis P. Hamburger, president of the Baltimore City Medical Society, and Dr. Arthur G. Barrett, president of the West Baltimore Medical Society. Dr. Mountin said his survey will cover sanitation, vital statistics, communicable disease control, child and maternal hygiene, industrial and mental hygiene, hospital facilities and activities of welfare agencies. He recently made surveys of the health departments of the state of Tennessee and the cities of Knoxville, Tenn., and Wilkes-Barre, Pa.

Faculty Changes at Johns Hopkins.—Dr. Walter E. Dandy, associate professor of clinical surgery, Johns Hopkins University School of Medicine, has been promoted to clinical professor of neurosurgery, the university has announced. The following promotions to associate professors in the school of medicine were also announced: Drs. Harvey B. Stone, in clinical surgery; Jonas S. Friedenwald, in clinical ophthalmology; Edwin C. Andrus, in medicine, and Arthur Grollman, in physiology. Justin M. Andrews, Sc.D., associate in protozoology, has been promoted to associate professor in the School of Hygiene and Public Health. The appointment of Dr. Wade Hampton Frost, professor of epidemiology, as dean of the School of Public Health and Hygiene to succeed Dr. William H. Howell, was announced in THE JOURNAL, March 14, p. 869. At the commencement exercises of Johns Hopkins University, June 9, the following gifts to the school of medicine were announced: $5,700 under Dr. J. Whitridge Williams, chief of the department of obstetrics; $13,626 under Dr. Edwards A. Park, chief of the department of pediatrics, and $35,450 under Dr. Adolf Meyer, director of the Phipps Psychiatric Clinic.

MASSACHUSETTS

State Medical Election.—The following officers were elected at the annual meeting of the Massachusetts Medical Society, June 8-10: Drs. Halbert Greenleaf Stetson, Greenfield, president; Thomas Horatio McCarthy, Brockton, vice president, reelected; Walter Lincoln Burrage, Brookline, secretary; Charles Shorey Butler, Boston, treasurer, and Samuel B. Woodward, Worcester, orator. Dr. Burrage has served as secretary since 1909.

Personal.—Dr. Alice Hamilton, for many years assistant professor of industrial medicine at Harvard University Medical School, will conduct special research in industrial sickness insurance under a grant of money from a $1,000,000 trust fund established by Gustav Oberlaender, Reading, Pa., to support professional and research work that will promote good will between the United States and German-speaking countries, according to the New York *Times*. The amounts of these awards are to be determined in accordance with the work done in individual cases.——Dr. Alexander Forbes, Milton, associate professor of physiology, Harvard University Medical School, Boston, is commander of an expedition which sailed from Boston, June 16, to make an aerial survey of the coasts and fiords of Labrador. The American Geographical Society sponsored the expedition, which will require three months.

Society News.—Dr. Stephen Maddock read a paper on "The Maggot Treatment of Osteomyelitis" before the Massachusetts Society of Examining Physicians, May 6, in Boston.——A medical pageant was presented by Tufts College Medical School, department of medical history, at the May 12 meeting of the Essex South District Medical Society; the characters represented were Hippocrates, Moses, Maimonides, Andreas Vesalius, Ambroise Paré, William Harvey, Thomas Sydenham, Louis Pasteur, Joseph Lister, Paul Ehrlich.——The sixth annual conference of the Health Education Council was held at the Massachusetts Institute of Technology, June 5-6. Health workers, including teachers, public health nurses, workers from health agencies, school principals, school nurses and officials of the state department of public health, participated. Among the speakers was Martha Van Rensselaer, who reported on the education and training section of the White House Conference on Child Health and Protection.

MINNESOTA

Personal.—Dr. Ivar Sivertsen, Minneapolis, was appointed to the state board of medical examiners recently, succeeding Dr. Charles E. Caine, Morris.

Society News.—Dr. Franklin R. Wright, Minneapolis, recently spoke before the Renville County Medical Society on "Genito-Urinary and Venereal Diseases."

Quack McGraw Sentenced.—Robert McGraw, 65 years old, Negro quack who formerly practiced at Hewitt and Villard, Minn., was arrested, June 8, at Winsted, charged with violating the Basic Science Law. McGraw had been previously arrested and tried on two occasions before Judge Flaherty of Glenwood, but in each case Flaherty dismissed the case. The state board of medical examiners, when informed that McGraw had located in McLeod County, had him arrested on a complaint filed by Mr. Brist, representing the board. June 11, a second complaint was filed against McGraw because he had agreed to cure a case of Hodgkin's disease within three months. McGraw was brought before Judge Kohler of the municipal court of Glencoe, who set the quack's bail at $2,000. He was unable to raise this and was confined in the county jail. McGraw pleaded guilty to both charges before Judge C. M. Tifft, who imposed a fine of $225 and costs on the first charge. On the second charge Judge Tifft sentenced McGraw to one year in the county jail and suspended the sentence on the condition that McGraw return immediately to Illinois, his native state, and refrain from the practice of healing in Minnesota. The court expressly reserved the right to revoke the suspension of the sentence at any time it saw fit. Judge Tifft also warned McGraw against attempting to practice in his own state or anywhere else, unless he was licensed. This brings to a close three years of work on the part of the state board of medical examiners to eliminate a man whom the board describes as one of the most vicious quacks in the state.

MISSOURI

Personal.—Dr. Arthur W. Proetz, St. Louis, assistant professor of clinical otolaryngology at Washington University Medical School, has received the $500 Casselberry prize of the American Laryngological Association for notable work in his field. The award was made at the recent annual meeting of the society in Atlantic City, in recognition of research work by Dr. Proetz on sinus diagnosis and treatment. This prize was established by the late Dr. William E. Casselberry, Chicago, to be awarded for outstanding work in laryngology and rhinology.——Dr. Carl F. Cori, formerly of the State Institute for the Study of Malignant Diseases, Buffalo, N. Y., has been appointed professor of pharmacology at the Washington University School of Medicine, St. Louis. He succeeds Dr. Herbert S. Gasser, who will go to New York. Dr. Cori is a graduate of the University of Prague, Czechoslovakia, and did advanced work in the University of Vienna.

NEW JERSEY

Midwives Complete Course for Licensure.—One hundred and seven midwives have completed the advanced course for licensed supervised midwives since it was started in 1927, according to the bulletin of the New Jersey State Department of Health. In 1930 midwives officiated at 14.9 per cent of the births in the state. At the annual conference of midwives, May 22, in Jersey City, Yandell Henderson, Ph.D., New Haven, Conn., among others, spoke on "Newer Methods of Resuscitation in Asphyxia Neonatorum," and Dr. Benjamin P. Watson on "What Is the Future for Midwives in America?"

Society News.—Dr. Charles Gordon Heyd, New York, addressed the Essex County Medical Society, May 14, on "Modern Medical Problems and the Practitioner." Dr. Linn Emerson, Orange, spoke on "Economic Philosophy for the Present-Day Doctor" at a meeting of the society, April 9, in Newark, and Dr. James S. Plant, Newark, on "The Essex County Juvenile Clinic and the Medical Profession."——Dr. Chevalier Jackson, Philadelphia, addressed the May meeting of the Mercer County Medical Society, Trenton, on "Suppurative Diseases of the Lung."——Dr. Willard G. Mengel, Camden, read a paper on "Squint in Children and Its Effect in Later Life" before the Camden County Medical Society, April 7, in Camden.——Drs. Catharine MacFarlane, Philadelphia, spoke on "Rôle of Focal Infections in Disease of Urinary Tract," and John Stewart Rodman, Philadelphia, "Cancer of the Breast," at a meeting of the Cumberland County Medical Society, April 14, in Vineland.——Dr. August S. A. Thommen, New York, read a paper on hay-fever at a meeting of Middlesex County Medical Society, April 22, in New Brunswick.——Dr. William C. White, New York, addressed the Passaic County Medical Society on "Diagnosis and Treatment of Breast Conditions," April 9, in Paterson.——Dr. Bruce L. Fleming, Philadelphia, spoke on "Diagnosis of Acute Abdominal Lesions" before the Salem County Medical Society, April 8, in Salem.——Dr. Joseph Jordan Eller, New York, addressed the Morris County Medical Society at Greystone Park, May 21, on "Diagnosis and Treatment of Common Skin Diseases with Special Reference to Precancerous Lesions."

NEW YORK

Hospital News.—The Country Home for Convalescent Babies, Sea Cliff, L. I., was reopened when the new building was dedicated, April 5. It is designed to care for seventy-five children. Dr. Albert M. Bell is attending physician.

Society News.—Drs. Arthur M. Dickinson and John H. Gutmann addressed the Medical Society of the County of Albany, June 22, at Albany, on "Injection Treatment of Varicose Veins" and "Surgical Aspects of Pulsating Exophthalmos," respectively.——Drs. A. C. Matthews and Patricia H. Steen addressed the Suffolk County Medical Society at a meeting, April 30, at Kings Park State Hospital, Kings Park, on mental hygiene for children and mental deterioration following encephalitis, respectively.——Drs. Burton T. Simpson, Buffalo, and John M. Swan, Rochester, addressed the Seneca County Medical Society, May 14, on "The Present Conception of the Etiology of Cancer" and "Early Diagnosis of Cancer," respectively.——Dr. John W. Kissane, Malone, among others, addressed the Franklin County Medical Society, June 10, on "Allergic Manifestations in Infants."

Number of Typhoid Carriers.—During 1930 there were 527 persons in New York known to carry the germs of typhoid but who were not sick with the disease, the state department of health reports. Of this number 258 lived in New York City, 244 were from upstate and twenty-five were in state institutions. During the year fourteen carriers were removed from the upstate active list; one was cured by gallbladder operation, one died, two disappeared (one of these has since been found to have died), three moved to New York City and seven moved to other states. Of thirty-five new carriers listed, seven were discovered through routine release cultures, a year having elapsed since their attack of typhoid; twenty-six were found through the routine investigation of sporadic typhoid cases, and two through investigation of small outbreaks of the disease. Three of these were cooks, one of them employed on a dairy farm; one a maid in a hotel; one a student nurse; one a practical nurse; thirteen were housewives; six resided on dairy farms, and the remainder had occupations that did not involve the handling of food. None of the carriers were under 10 years of age; two were from 10 to 19 years old; two from 20 to 29; four from 30 to 39; four from 40 to 49; nine from 50 to 59; nine from 60 to 69; four from 70 to 79, and one was 84 years old. It is estimated that one carrier was the cause of forty-six cases. Including these, a total of 119 cases were traced to the thirty-five newly discovered carriers, of whom nine were men and twenty-six were women. In all but six there was a history of a previous attack of the disease. In two instances the attack occurred fifty years before the discovery of the carrier, and in one instance fifty-three years before.

New York City

United Hospital Fund.—Fifty-five institutions shared in the $625,000 distributed by the United Hospital Fund at a luncheon, May 11. The annual allotments were based on the amount of free service given by the various member hospitals during 1930. It was reported at the meeting that $4,000 more than was collected was distributed. The hospitals provided 3,955,158 days of care in all. In the outpatient departments last year 3,602,513 visits were made, of which 1,215,038 or 35.7 per cent were free. The amount distributed was $140,000 less than for the previous year.

Administrative Board for Graduate Medical School.—President Nicholas Murray Butler of Columbia University has appointed an administrative board of postgraduate studies in medicine to have general oversight and control of all graduate instruction in medicine offered by the university, under the terms of the agreement by which the New York Post-Graduate Medical School and Hospital became, July 1, the Post-Graduate School of Medicine of Columbia (THE JOURNAL, February 7, p. 449). Members of the board, which represents the undergraduate school of medicine, the graduate school and the governing body of the university, are Drs. Willard C. Rappleye, chairman, Linsly R. Williams, Walter W. Palmer, James W. Jobling, Frederick Tilney, Arthur F. Chace, Herman O.

Mosenthal, Howard F. Shattuck, Edward H. Hume, Henry S. Dunning and Lewis F. Frissell; Howard Lee McBain, Ph.D.; James C. Egbert, Ph.D., and Mr. Frank D. Fackenthal.

Fourth Graduate Fortnight.—Disorders of the circulation will be the theme of the fourth annual graduate fortnight of the New York Academy of Medicine, which is to be held, October 19-30. Lectures will be delivered each evening in the auditorium of the academy and clinical demonstrations will be conducted each afternoon in twelve of the leading hospitals of New York. Nineteen physicians from various cities will be the evening speakers. An exhibit of anatomic, bacteriologic and pathologic specimens and research material bearing on the subjects dealt with in the lectures will be on view at the academy and some of the items will be demonstrated on schedule. The medical profession of the country is invited to attend the fortnight, for which no charge is made. It is necessary to register, however, for the demonstrations. Registration blanks and programs may be obtained from the New York Academy of Medicine, 2 East One Hundred and Third Street, New York City.

NORTH CAROLINA

Dr. Parrott Appointed State Health Officer.—Dr. James M. Parrott, Kinston, was appointed secretary of the board of health and state health officer, May 28, succeeding the late Dr. Charles O'H. Laughinghouse. Dr. Parrott is a graduate of Tulane University of Louisiana School of Medicine, New Orleans, class of 1895.

Society News.—Drs. William B. Dewar, Raleigh, and Coy C. Carpenter, Wake Forest, addressed the Wayne County Medical Society, Goldsboro, April 3, on "Hypothyroidism" and "So-Called Cancerous Lesions," respectively.——Dr. Alexander C. Bethune, Raeford, March 3, spoke before the Hoke County Medical Society, Sanatorium, on elephantiasis.

PENNSYLVANIA

Veteran Physicians Honored.—The Schuylkill County Medical Society gave a testimonial dinner, May 12, for five physicians who have been in practice fifty years or more. Those honored were Drs. Charles W. Bankes, Middleport; J. Spencer Callen, Shenandoah; Charles B. Dreher, Tamaqua; William H. Matten, McKeansburg, and David Taggart, Frackville. Dr. Dreher has been in practice sixty-five years.

Society News.—Dr. Charles H. Mayo, Rochester, Minn., spoke on "The Liver: Its Function and Surgical Treatment" before the Seventh Councilor District of the Medical Society of Pennsylvania, June 5, in Williamsport.——Dr. William E. Hughes, Philadelphia, addressed the annual meeting of the Third Councilor District of the Medical Society of the State of Pennsylvania, June 24, at Cresco, on "Present Conditions in Russia."——The Northwestern Pennsylvania Medical Society and the Eighth Councilor District of the Medical Society of the State of Pennsylvania were addressed, June 26, in Franklin, among others, by Drs. Roy W. Scott, Cleveland, on "Clinical and Postmortem Observations of the Heart"; Harry E. Mock, Chicago, lantern slide demonstration of "Reconstructive Surgery," and Howard C. Frontz, Huntingdon, "Criminology as Observed at Huntingdon (Pa.) Reform School."——Dr. Thomas McCrae and Dr. Edward J. Klopp, Philadelphia, spoke on "Diagnosis of Acute Abdominal Diseases" before the annual meeting of the Eleventh Councilor District of the Medical Society of the State of Pennsylvania, June 18, at Johnstown. The Central Pennsylvania Jefferson Medical College Alumni Association held its annual meeting in the evening at Johnstown.——Dr. Thomas McCrae, Philadelphia, spoke on "Nephritis and Hypertension" before the Delaware County Medical Society, June 4. Dr. Frederic H. Leavitt, Philadelphia, among others, addressed the society, May 14, on "Mental and Neurological Earmarks."——Dr. Arthur C. Morgan, Philadelphia, among others, spoke on "Diseases of the Chest and Heart" at the annual clinic of Spencer Hospital, Meadville, May 11.——Dr. Frank C. Hammond, Philadelphia, addressed the Northampton County Medical Society, Easton, June 19, on "Genital Bleeding in the Female."——Dr. John H. Wyckoff, Jr., New York, addressed the Allegheny County Medical Society, Pittsburgh, June 16, on congestive heart failure.

Philadelphia

Hospital News.—A new five-story building providing seventy-three rooms for private patients and twenty-five beds for semiprivate patients was opened, May 12, at the Presbyterian Hospital. The first floor is occupied by the department of urology of the hospital. An addition to the outpatient building provides a complete new set of operating rooms. The new facilities were built at a cost of $1,250,000.

Dr. Stengel Appointed Vice President at University of Pennsylvania.—Dr. Alfred Stengel, professor of medicine, University of Pennsylvania School of Medicine, has been appointed vice president in charge of medical affairs in the university. Dr. Stengel, June 19, announced plans for affiliation between the university and the Orthopedic Hospital and Infirmary of Nervous Diseases, including the erection of quarters for the hospital and infirmary on the university grounds soon. He also expects to bring about closer identification between the Institute of Mental Hygiene of the Pennsylvania Hospital and the university, and closer affiliation with the Children's Hospital. It is also planned to enlarge the departments of public health and hygiene and physical education and to develop a comprehensive student health service. Dr. Stengel was graduated from the university in 1889 and joined the faculty in 1893 as instructor in clinical medicine. He became professor of medicine in 1911 and later was appointed professor of medicine also in the graduate school of medicine.

TEXAS

Dinner to Dr. Cary.—The Dallas County Medical Society entertained at a dinner, Saturday, June 27, in honor of Dr. Edward H. Cary, Dallas, who was made President-elect of the American Medical Association at the Philadelphia session.

County Health Work Abandoned.—Commissioners of Williamson County have ordered the county health work discontinued as a measure of economy. The work had been carried on for several years jointly by the county, state and federal governments.

Health at El Paso.—Telegraphic reports to the U. S. Department of Commerce from eighty-two cities with a total population of 36 million for the week ended June 13 indicate that the highest mortality rate appears for El Paso, 19.4, and the rate for the group of cities as a whole, 10.7. The mortality rate for El Paso for the corresponding period last year was 15.7 and for the group of cities, 11.5. The annual rate for the eighty-two cities for the twenty-four weeks of 1931 was 13.1, as against a rate of 13 for the corresponding weeks of 1930. Caution should be used in the interpretation of these figures, as weekly figures fluctuate widely. The fact that some cities are hospital centers for large areas outside the cities or that they have large Negro populations may tend to increase the death rate.

Society News.—A recent meeting of the Harris County Medical Society was addressed by Drs. Edward W. Griffey, Houston, and Paul R. Stalnaker, Washington, D. C., on "Management of Traumatic Corneal Lesions" and "Excretion or Downward Pyelography," respectively. Dr. John O. Polak, Brooklyn, addressed the society, March 31, on "Cesarean Section."——The Caldwell County Medical Society was addressed, April 16, by Drs. Mary C. Harper and Edwin Hirschfeld, San Antonio, on "Nutritional and Postural Studies of School Children" and "Surgical Treatment of Hypertrophic Pyloric Stenosis," respectively.——Dr. William B. Sharp, Galveston, among others, addressed the Galveston County Medical Society, April 10, on "Relationship of Preventive to Curative Medicine."——Dr. D. Leon Sanders, Wills Point, addressed the Van Zandt County Medical Society, April 3, on "Treatment of High Blood Pressure and the Relationship of Protein Foods to Hypertension," and Dr. Horace H. Hilliard, Canton, "Roll of Honor of the Participants in Yellow Fever Investigations in Cuba."——The one hundred and first semiannual meeting of the North Texas Medical Association was held, June 9-10, in Denton. Among the speakers were Drs. Charles T. Kennedy, Greenville, on "Emotional Shock Producing Signs of Actual Physical Disease," and Max R. Woodward, Sherman, "Vitamins and Vitamin Therapy." Those taking part in a symposium on "Diseases of the Biliary System" were Drs. Samuel Gibbs Milliken, Houston, pathology; John R. Lehmann, Dallas, diagnosis; Wiley C. Morrow, Greenville, medical treatment, and Paul Harrington Duff, Dallas, surgical treatment. The December meeting will be in Dallas.

VIRGINIA

Another County Health Unit.—The new health and welfare department of Pittsylvania County, authorized by the county supervisors, April 23, began operation, June 1. The department consists of a physician, a trained nurse, a sanitation officer and a welfare worker. The cost of the unit is $3,000 per year, one-third of which will be paid by the state and one-third by the federal government, the remaining third to be paid by the county.

University News.—Dr. Tiffany J. Williams, for the past two years obstetrician and gynecologist at the Great Falls

Clinic, Great Falls, Montana, has been appointed professor of obstetrics at the University of Virginia Department of Medicine, succeeding Dr. Francis Bayard Carter. Dr. James R. Cash, since 1924 professor of pathology at the Peiping Union Medical College, China, has been appointed to the Walter Reed professorship of pathology, succeeding the late Dr. Harry T. Marshall as the second incumbent of the chair.

Tablet to Continental Army Surgeon.—A tablet erected on the home of the late Dr. William Brown, physician general and director of hospitals of the Middle Department of the Continental Army during the Revolutionary War, was unveiled, June 14, in Alexandria by Alexander Gustavus Brown III, a great-great-great-grandson of Dr. Brown. Surg.-Gen. Robert U. Patterson, representing the U. S. Army, and Dr. Llewellyn Powell, Alexandria, representing the Medical Society of Virginia, spoke at the ceremonies, which were conducted by the Washington Society of Alexandria. The residence, which is practically the same as when Dr. Brown lived, was opened to visitors. Dr. Brown was the author of the first American pharmacopeia, and was for many years personal physician and an intimate friend of Washington. The memorial tablet was erected by his descendants.

Society News.—Dr. Clarence Porter Jones, Newport News, was elected president of the Virginia Society of Otolaryngology and Ophthalmology, May 2, in Richmond; Dr. Courtney Edmond, Clifton Forge, vice president, and Dr. Henry Grant Preston, Harrisonburg secretary-treasurer, reelected. Dr. Jones addressed the meeting on "Visual Field Studies in Sinus and Dental Lesions."——Officers of the Virginia Public Health Association elected, May 14, in Richmond are: Drs. Peyton M. Chichester, Clarendon, president; James J. McCormick, Norfolk, vice president; Allan L. McLean, Richmond, secretary-treasurer.——Dr. Peter Marshall Murray, New York, addressed the Old Dominion Medical Society at Norfolk, June 9, on "Pathology of Puerperal Sepsis"; Dr. Murray addressed a public health meeting in the evening on "Responsibility of the Negro in the Program of the White House Campaign on Child Health and Protection."

WASHINGTON

Personal.—Dr. Erestus T. Hanley, Seattle health commissioner, was elected president of the Western Branch of the American Public Health Association, May 30, in Seattle, and Dr. William P. Shepard, San Francisco, secretary, reelected.

Society News.—Dr. Emilian O. Houda, Tacoma, gave a lecture on goiter before the Lewis County Medical Society, May 11, in Centralia, illustrated with a collection of goitrigenous bacteria, and Dr. William H. Goering spoke on "Modern Mode of Attack on Arthritis."——Dr. Charles E. Watts, Seattle, spoke on "Clinical Significance of X-Ray Findings in Cardiac Diseases" and Dr. Oscar S. Proctor, Seattle, on "Surgery of the Chest" before the Walla Walla Valley Medical Society, May 14.

GENERAL

Ship's Hospital Organized as Clinic.—The *Empress of Britain*, the new 42,500 ton flagship of the Canadian Pacific line, contains a hospital and clinic. It includes an operating theater, hospital with delivery room, an isolation hospital, dental department with surgical room, an ultraviolet ray room and a roentgen-ray room, these units being grouped around the waiting room for patients and the consultation rooms of the physician and his staff. Hydrotherapy is provided for in a special section of the ship's bath equipment.

Automobile Fatalities for Four Weeks.—The U. S. Department of Commerce announces that, during the four weeks ended June 13, eighty-two large cities in the United States reported 629 deaths as compared with 669 deaths during the four weeks ended June 14, 1930. Most of these deaths were the result of accidents that occurred within the corporate limits of the cities, although some occurred outside city limits. For the fifty-two week periods ended June 13, 1931, and June 14, 1930, the totals for the eighty-two cities were 9,057 and 8,830, respectively, which indicate a recent rate of 25.9 per hundred thousand of population as against an earlier rate of 26. Five cities reported no deaths from automobile accidents for the last four weeks, the same number as for the corresponding period of 1930.

News of Epidemics.—Forecasts of an unusual prevalence of measles during 1931 have been justified, according to health officers. In Illinois, 30,410 cases were reported for the first twenty-two weeks of the year. In Pennsylvania, 5,000 cases were reported for the week ended May 6. Reports to the U. S. Public Health Service for the week ended June 6 showed 18,417 cases in forty-four states.——Rabies was said to be widespread in Paducah and McCracken County, Ky., in May. One veterinarian reported that he had treated eighty dogs for the disease since January 1.—A fraternity house at Butler University, Indianapolis, was quarantined, June 9, because of an outbreak of meningitis.——A high school at Alexandria, Ky., was forced to close two weeks before the end of the term because of an epidemic of scarlet fever and measles.——Twelve cases of typhoid, with two deaths, were reported from the Bronx, New York, within the first two weeks of June. Seventeen cases of paratyphoid at Glen Falls, N. Y., were traced to a carrier on a dairy farm.——Reports that malaria was epidemic in the Isthmus of Panama were called untrue by Col. Joseph Siler, health officer of the Canal Zone, who announced that the rate of cases per thousand of population thus far in 1931 was 18, while in 1929 and 1930 the rates for the first six months were 21 and 25, respectively.

Honorary Degrees.—Numerous universities conferred honorary degrees on physicians at the June commencements. At Northwestern University, Chicago, Drs. Isaac A. Abt and Robert Bruce Preble, both members of the faculty, received the degree of doctor of science. The University of South Carolina conferred the degree of doctor of laws on Dr. Kenneth M. Lynch, professor of pathology at the Medical College of the State of South Carolina, Charleston. Western Reserve University conferred the degree of doctor of science on Drs. Hans Zinsser, Boston; Samuel C. Harvey, New Haven, Conn.; Alphonse R. Dochez and David Marine, New York. On Drs. Henry A. Christian, Boston, and James Ewing, New York, Western Reserve conferred the degree of doctor of laws. Dr. John Mathews Peters, superintendent of Rhode Island Hospital for forty-two years, received the degree of master of arts from Brown University. At Yale Dr. Ray Lyman Wilbur, Washington, D. C., was awarded the degree of doctor of laws and Dr. Eugene L. Opie, Philadelphia, doctor of science. Dr. Lawrason Brown, Saranac Lake, N. Y., was honored with the degree of doctor of science by Dartmouth College, and Dr. Francis G. Brigham, Boston, with that degree by Colgate University, Hamilton, N. Y. Bowdoin College, Brunswick, Maine, conferred on Dr. Mortimer Warren, Portland, the degree of doctor of science.

FOREIGN

British Medical Association.—The ninety-ninth annual meeting of the British Medical Association will be held at Eastbourne, July 21-24, under the presidency of Dr. William G. Willoughby, Eastbourne. The tentative program lists the following subjects, among others, for discussion: "Treatment of Septicemia"; "Varieties of Secondary Anemias and Their Treatment"; "Recent Advances in Diagnostic Methods in Renal Affections"; "Causation and Treatment of Menorrhagias Not Due to Uterine Disease"; "Common Injuries to the Birth Canal and Their Immediate Treatment"; "Position of General Practitioners in Regard to Coroners' Postmortems"; "Public Health Problems Occasioned by Air Travel," and "Respiratory Responses in Mental Disorder." Entertainment has been arranged to include a golf tournament, receptions, teas and a ball. Dr. W. Harvey Smith, Winnipeg, Manit., Canada, is the present president of the association.

Society News.—The sixth International Congress on Industrial Accidents and Diseases will be held in Geneva, August 3-8. Among delegates from the United States are Drs. Francis D. Donoghue, Boston; Francis D. Patterson, Philadelphia; Fred H. Albee, New York, and Emery R. Hayhurst, Columbus, Ohio. Dr. Lewis R. Thompson, U. S. Public Health Service, Washington, D. C., will take part in a discussion of illness affecting men working on cement and artificial stones.——Three congresses will be held following the medical week, or the "Journees Médicales Coloniales," July 22-30, in Paris, as a feature of the International Colonial Exposition: International Congress on Demographical and Social Problems, August 1; International Congress on Medical Care, August 2, and International Congress on Nutrition, August 3. Further information may be obtained from the general secretary of the convention, "L'Hygiène Sociale," 112 boulevard Haussmann, Paris.

CORRECTION

Association of American Physicians.—In the proceedings of the Association of American Physicians, THE JOURNAL, June 20, p. 2152, following the report of a paper by Drs. George R. Minot and C. W. Heath, Boston, the name of the first discusser of the paper should have been Dr. H. W. Jones, Philadelphia, instead of Dr. C. M. Jones, Boston.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 30, 1931.

Unbalanced Diets and Disease

At the Royal College of Surgeons, before a distinguished audience with the president, Lord Moynihan, in the chair, Col. Robert McCarrison, who is a well known authority on deficiency diseases and goiter, delivered two lectures on "Surgical Aspects of Faulty Nutrition." The great value of his work lies in the fact that he has given a rigorous experimental demonstration of practical conclusions of the first importance. He is the director of Nutritional Research of the Indian Fund Research Association. His laboratories are at Coonoor in the Blue Mountains of southern India in an equable and salubrious climate. Here he maintains under ideal hygienic conditions a stock of albino rats of which he uses about 1,000 every year. They are fed on a diet similar to that of certain peoples of northern India, among whom are some of the finest physical specimens of mankind. This diet consists of whole meal flour, unleavened bread lightly smeared with fresh butter, legumes, raw carrots and cabbage, unboiled whole milk, a small ration of raw meat with bones once a week. Under these conditions there is no infantile mortality and no deaths of adults from natural causes. Over 1,000 necropsies showed no macroscopic evidence of disease except an occasional cyst of the liver containing tapeworm larvae. An experiment on a large scale was made by feeding rats, also hygienically housed, on ill-balanced diets such as are used by Indian peoples—cereals and vegetable fats with little or no milk, butter and fresh vegetables. Then all forms of diseases occurred—of the lungs; of the nose and sinuses, including otitis; of the upper respiratory passages; of the eye; gastro-intestinal (two cancers of the stomach); of the urinary tract; of the reproductive system (including fetal death and premature birth); of the skin (including gangrene of the tail or feet); of the blood; of the lymph and other glands; of the endocrine system; of the nervous system (nervous instability and polyneuritis); of the heart, and edema. McCarrison therefore concludes that one-sided diets, disproportionately rich in cereals and poor in animal fats, milk and fresh vegetables, induce in albino rats a large proportion of the diseases to which man is subject. Of all the diets he used, that composed of white bread, margarine, tea, sugar, jam, preserved meat, and scanty overcooked vegetables—a diet of many English people—proved one of the worst. Rats were not the only animals used; guinea-pigs, rabbits, pigeons and monkeys were also used and showed similar results and others besides. The latter include prescorbutic states, scurvy and duodenal ulcer in guinea-pigs; hyperplastic goiter in rabbits; beriberi in pigeons, and ulcerative colitis in monkeys. In every species properly fed animals remained remarkably free from disease; improperly fed ones subject to it. McCarrison therefore concludes that many of the ailments to which man is supposed to be heir are the result of improper feeding—a conclusion which he has been emphasizing for twelve years. But he admits that his experiments must not be too rigidly applied to man and that other factors to which he is exposed must be taken into account. But in general his results do apply to man. All the surgical conditions occurred in animals whose diets contained little or no vitamin A. In his hands food containing it, such as raw milk, butter, cod liver oil, carrots and fresh green vegetables protected his animals from these diseases and he has no doubt that in the hands of the surgeon they will go far to protect his patients and prevent recurrence after operation. Among surgical diseases he laid emphasis on adenoids, otitis media, gastroduodenal ulcer, gynecologic ailments, urinary calculi, lymphadenoid goiter and Grave's disease. Goiter he produced by faulty nutrition in rats, but the exciting cause escaped him; it was not iodine deficiency. One could be certain that it would occur in time on the deficient diet.

Death of Professor Halliburton

W. D. Halliburton, M.D., D.Sc., F.R.C.P., emeritus professor of physiology, King's College, University of London, has died at the age of 70. Educated at University College, London, he was appointed assistant in physiology under Prof. Sir E. Sharpey-Schafer. In 1889, at the early age of 29, he was appointed professor of physiology at King's College, London. Here he trained many pupils, such as Brodie, C. J. Martin, Locke, Da Fano and Rosenheim, whose researches are well known. His own researches, in collaboration with Rosenheim, led to the discovery that cholesterol might contain as an impurity ergosterol, in which vitamin D is developed under the influence of ultraviolet radiation. His early work was largely on the biochemistry of the proteins of muscle and blood. With W. E. Dixon he did researches on the cerebral circulation and cerebrospinal fluid. As a writer of textbooks he is famous all over the world. In his Textbook of Chemical Physiology, published in 1891, he collected for the first time all that was known on the subject, and the work is still a classic. But he is most widely known for "Halliburton's Physiology," which for thirty years has been the guide of the medical student. Nineteen editions and 125,000 copies were published, and it has been translated into Chinese. It was originally "Kirkes's Physiology," the most popular work of its day, but Halliburton made it still more popular. He published a large number of scientific papers of the first importance, such as, to mention only the principal ones, "The Essentials of Chemical Physiology," "The Chemical Side of Nervous Activity," "Biochemistry of Muscle and Nerve," "Physiology and National Needs." In 1916 he undertook, at the request of the Physiological Society, the editing of *Physiological Abstracts*.

Alcohol and Automobile Accidents

Last year more than 7,000 persons were killed and 180,000 injured by the automobiles on the roads of Great Britain. The number has been steadily increasing year by year. It is believed that a considerable proportion of the accidents are due to consumption of alcohol, in what is generally regarded as moderate quantities by the drivers, immediately before or during the drive. Many normal and responsible persons who drive are unaware that their "reaction time" is reduced and therefore that they are rendered more dangerous. The interval between the reception of a stimulus from the retina to the response of the muscles or hand to put on the brake or turn the steering wheel is normally a fifth of a second but by taking a "whisky and soda" or a pint of beer it may be prolonged to two or even four fifths of a second. A car traveling 35 miles an hour will go 20 feet farther in consequence of the increase in reaction time, which may make the difference between life and death. Dr. Courtenay Weeks, a writer on alcoholism, in giving evidence before a Royal Commission stated that 88 per cent of the municipalities had a rule that their drivers must not take alcohol while on duty and 72 per cent of private transport companies had the same rule. He found that 95 per cent of road passengers are driven by men who are abstainers while on duty and that only 5 per cent of road accidents are caused by automobile omnibuses and coaches.

Mr. Herbert Morrison, minister of transport, has received a medical deputation, comprising twenty-six eminent physicians, surgeons, pathologists and physiologists, which asked him to issue an alcohol warning card to all applicants for an automobile driver's license. In introducing the deputation Dr. Salter, M. P., said that since the object of the deputation had become known he had been inundated with letters in support from physicians all over the country. Sir Arthur Newsholme (late principal medical officer of the ministry of health and lecturer,

on public health, Johns Hopkins University) declared that though the sobriety of the country was increasing, in one year one in every 400 of the male population was convicted of drunkenness. He pointed out the danger due to the increase of reaction time brought about by alcohol in drivers. Dr. H. M. Vernon (physiologist and writer on alcoholism) said that people did not realize that the effects of alcohol were still present hours after drink had been taken. One pint of beer caused a reduction in skill which might persist for three hours afterward. The minister said that he was very sympathetic and much impressed. He was entirely in agreement on the danger of alcohol to automobile drivers. It was one of the factors of safety of the roads with which he was much concerned. He believed that the majority of British drivers were already convinced of the soundness of that advice, but they could not ignore the minority. Special attention had been given to the matter in the road traffic acts and he hoped that magistrates would not be too light in imposing penalties on those found drunk in charge of cars.

PARIS

(From Our Regular Correspondent)

May 13, 1931.

Nerve Grafting

At a recent session of the Société de chirurgie, Thalheimer and Blondin-Walter presented a patient in whom they had implanted, ten months after an injury, a radial nerve graft taken from a dog. The patient was injured in September, 1926. The wound that resulted was sutured without any especial attention being given to the radial nerve. A paralysis of the nerve in question, which was controlled later by Professor Zimmern, revealed a complete degeneration of all the muscles innervated by the radial nerve, beginning with the supinator longus. Thalheimer reoperated on the patient in July, 1927, and applied a nerve graft about 10 cc. long, which was taken freshly from a dog. In December, 1927, no clinical improvement could be noted. At the end of three years, the patient was reexamined by experts and his disability was definitely established at 50 per cent. A recent examination has shown that the forearm of the patient has become nearly normal. In the report of the case as presented to the Société de chirurgie, Professor Gosset called attention to the tardy successful outcome of this graft, an interesting result of living grafts such as he has recommended since 1923 to remedy loss of substance in certain cases of nerve injuries.

The Activity of Antidiphtheritic Serum

The death from diphtheria of a young hospital intern in Lille has given rise to a spirited discussion with reference to the therapeutic value of the antidiphtheritic serum prepared by the Institut Pasteur, the administration of which in large doses, by the subcutaneous and intravenous route, was unable to prevent the young man's death. His teacher Professor Minet has published a violent article condemning the serum of the Institut Pasteur, which he declares has become less potent because it still has the same strain of bacillus as its origin which it has had for fifty years, with the result that it has doubtless lost its virulence, to a great extent. He had one of his pupils prepare a thesis, in which he compares the value of the serum prepared in Belgium, which he has found more effective. Dr. Roux, director of the Institut Pasteur in Paris, has published a long letter in reply, in which he points out that the Belgian serum is prepared under the direction of Professor Bordet, who is a former pupil of the Institut Pasteur and who employs methods virtually identical with the methods of the Paris institute. The observations cited in the thesis of the pupil of Professor Minet show that the French serum was used in winter and the Belgian serum in the spring; that is to say, at two different times of the year, when the gravity of the diphtheria always varies greatly. Furthermore, a careful study of the case of the deceased intern has shown that the latter, infected no doubt by the false membrane which a diphtheritic child on whom he was performing an intubation coughed into his face, took no immediate precautions. He waited several days, after he developed sore throat, before he took a bacteriologic culture to ascertain the nature of the disorder and refused at first to employ a diphtheritic serum, because he feared serum sickness. The serum was finally administered too late. Mr. Roux recalled that he discovered long ago that the efficacy of the serum is directly parallel to the promptness with which it is employed. It is not true, he stated further, that the potency of the antidiphtheritic serum has diminished, and he cited, in support of his opinion, statistics pertaining to all the cases of diphtheria in which the same serum had been employed at the Hôpital de l'Institut Pasteur, during the past thirty years. These statistics prove that the mortality has been constantly decreasing during that period. There is, however, some evidence for the belief that diphtheria has increased in gravity during recent years, for the cases in which the streptococcus is associated with the Löffler bacillus are becoming more and more frequent.

The Monaco Prize Awarded to Veillon

The Monaco prize of 100,000 francs ($4,000), established by Prince Albert de Monaco and awarded every two years by the Academy of Medicine at a secret plenary session, to aid some French scientist in his researches, does not ordinarily awaken much discussion, the successful candidate being fairly well agreed on in advance. But that was not the case this year, for the debate opened with seven candidates in the field, all of them strongly supported by ardent defenders. The seven candidates were: Messieurs Gabriel and Fosse, members of the Academy of Sciences; Ramon, Besredka and Veillon of the Institut Pasteur; Professor Leriche of Strasbourg, known by reason of his publications on the surgery of the sympathetic system; and Professor Sabourand, the eminent dermatologist whose fame rests on his researches on seborrhea and ringworm disorders. After a long debate, the choice of the academy fell on Dr. Veillon, chief physician in a department of the Hôpital Pasteur. Veillon is a bacteriologist whose works are accepted as authority in France and in foreign countries. He has discovered a very simple method for the cultivation of anaerobic micro-organisms, based on the reducing capacity of sugars. He has as co-workers a number of young specialists in the pathology of micro-organisms. In reality, Veillon was a dark horse, not being particularly known to the public. He is, however, an assiduous worker—a man who has spent an exemplary life entirely within the walls of his laboratory at the Institut Pasteur, indifferent to the world and to the honors it confers, as did the Benedictine monks of the Middle Ages, without having amassed any personal fortune. The academy no doubt wished to convey the idea that this prize, the largest from the pecuniary point of view, should serve to reward self-sacrificing devotion to science.

ITALY

(From Our Regular Correspondent)

April 15, 1931.

Meeting of the Medical Academy of Rome

The Academia medica di Roma met recently under the chairmanship of Prof. Silvestro Baglioni, physiologist of the University of Rome. Prof. Omodei Zerini spoke on eosinophil leukemia. In one case of recurring pleural effusion that he observed there was eosinophilia up to 54 per cent with 6 per cent of eosinophil myelocytes. He discussed the differential diagnosis as between pleural tumor, Hodgkin's disease and eosinophil leukemia, and examined the literature on the subject. The speaker, in closing, expressed his doubts as to the existence of such a blood disease.

Professors Meldolesi and De Orchi reported the first results of their studies and experiments on the modifications of the blood crasis. Observations were made on eighty-eight subjects,

three of whom were normal and eighty-five were affected with circulatory disturbances. In each subject they determined repeatedly—in the arterial and in the venous blood—the number of erythrocytes, their volume and the hemoglobin content. In the normal subjects, the venous blood had a greater number of erythrocytes, a greater amount of hemoglobin and a greater hematocritic value. The proportions increase in various ways in persons with circulatory disorders.

Professors Meldolesi and Bons discussed, in connection with 221 cases of heart disease, the relation between the acid-base equilibrium of the blood and the functional state of the circulation. In the venous blood they observed a diminution of the alkali reserve only in rare cases of decompensation in which there was a typical increase of the basal metabolism. In a comparative study of arterial and venous blood in 221 cases, they found a frank prevalence of the venous alkali reserve in normal individuals and in patients with compensated heart disease. In cardiac patients in a condition of decompensation, they observed diverse behavior. In recompensation there is always a return of the two values of the alkali reserve to the primary relation.

Professor Alessandri, clinical surgeon at the university, spoke on certain refinements in the diagnosis of tumors of the kidney. When the symptomatology was not clear, the speaker took advantage, in 150 cases, of pneumokidney and pneumoperitoneum, the use of which ought to be better known among surgeons, in addition to the more common methods of pyelography. Professor Alessandri advises the making of a large incision with possible resection of the eleventh and twelfth ribs, in order to control promptly the renal vein and to suture it, for the purpose of preventing the dislodgment of possible neoplastic thrombi.

Dr. Lozzi spoke on hematuria in cases of appendicitis and referred to a number of cases observed in the Clinica chirurgica at Rome. In one case the hematuria was of ureteral origin resulting from the spread of the morbid process to the ureter.

Successor to Professor Ascoli Appointed

As the successor to Prof. Vittorio Ascoli in the management of the Clinica medica universitaria, the faculty of medicine of the University of Rome has appointed Prof. Cesare Frugoni "medical clinician" in Padua. Professor Frugoni, who is still under 50 years of age, had served as an assistant to Professor Grocco, when he entered on a university career after the war. After nine years as professor of special medical pathology at the University of Florence, he has attained the chair in clinical medicine at the capital. A large number of scientific publications have issued from his pen or have been published by his "school." Of especial importance are the works on asthma and pulmonary edema.

The University City of Rome

A recent decree of the prime minister establishes the confines of the so-called university city of Rome. The area comprises a tract about the Policlinico Umberto I as a center and will contain all the institutes and buildings belonging to the various faculties, except the rectorate, or the president's office, which will remain in the Palazzo della sapienza. For the faculty of medicine there will be erected the new seats of the institute of hygiene and the institute of bacteriology, and the George Eastman dental clinic, already in process of construction, will be completed.

The Children's Protective League

The Opera nazionale per la difesa della maternità e dei fanciulli, with a view to inducing the mothers of illegitimate children to nurse their offspring, has worked out a special application of the law pertaining to the aid given this class of new-born infants. It has established "marriage prizes" or marriage rewards for those who will consent to marry such a mother, thereby making the offspring legitimate, the reward being larger the earlier the marriage takes place. More than 300 marriages have been brought about in this manner.

Meeting for the Study of Cancer

The Centro per lo studio del cancro, of Turin, held recently a meeting presided over by Professor Morpurgo, who described the status of the organization of the center. Ambulatory visits are made daily by the assistants and weekly by the medical council, which is composed of three professors of the university. The number of patients visiting the center has increased, and one begins to observe not only patients in the first stages but also types that are merely under suspicion. With the collaboration of the visiting assistants, the patients can be followed up at home after the consultation, and one obtains thus information on the course of the several cases.

Professor Bizzozero spoke on atypical and pseudotumorous lichenizations, and described cases in which the pseudotumorous formations reached the size of a pigeon's egg. The speaker brought out certain characters for the differentiation of these formations and true neoplasms, as the existence, in typical lichenizations, of transitory states; the good general condition of the patients; the presence of pruritus, and the long duration of the disease.

Dr. Geddo reported the results of research on the existence in the leukemic blood of specific substances that stimulate the bone marrow. His experimental observations lead him to conclude that the leukocytic action of the ultrafiltrates in the leukemic blood is due solely to the presence of leukocytes. The reaction presents a preliminary phase of the type of hemoclastic shock.

Professor Bertocchi reported on a case of psammoma of the cord in which, for some inexplainable reason, the examination with iodized poppy-seed oil revealed a compression two vertebrae further down than the localization of the tumor.

The Pedagogic Medical Congress

The second Congresso medico-pedagogico nazionale was held in Milan under the auspices of the Associazione pro infanzia anormale and of the Sezione di igiene mentale. Professor Medea presided, and in his opening address he described the progress that has been made at Milan in the care of abnormal pupils. Among other institutions of the kind, there is a school for children with mental abnormalities, and a school for children with defective hearing and with speech defects. The Associazione pro infantia anormale organizes courses for the training of teachers in these special schools and publishes a review on child neuropsychiatry, which is the only one published in Italy.

Professor De Sanctis, director of the Clinica psichiatrica of the University of Rome, presented the official paper on the results of the work of the physician and of the teachers in the various forms of mental instability and mental weakness. The speaker treated two sides of the question: the medical and the pedagogic side.

Prof. Giulio Ferreri, director of the school for deafmutes in Milan, spoke on the present state and the trends of medical and pedagogic aid for children with defective hearing and speech defects, and described the modern developments in these fields. He mentioned also certain subjects worthy of study and experimentation in order to contribute to the training of medical personnel in the pedagogic principles which must be understood in order to give the most effective aid to persons with abnormal sense faculties.

The third topic on the program was "The Present State and Trends of Medicopedagogic Aid Given Children of Abnormal Mentality. The chief speakers on the subject were Professor Corberi and Dr. Albertini. The first speaker discussed some

of the more grave forms of mental insufficiency, and of the abnormalities of character that were difficult to treat and to improve in institutions with a psychiatric or a pedagogic trend. He pointed out the need in Italy of institutions, annexed (or otherwise) to the provincial hospitals, which provide means of studying in a scientific manner forms of child neuropsychiatry that are comparatively rare, in order to prepare the way for the prophylaxis and treatment of the abnormalities of character and intelligence.

Rome was chosen as the meeting place for the next congress, to be held in 1932.

In Commemoration of the Anatomist Luigi Sala

At the Istituto di anatomia umana normale of the University of Pavia, Prof. Antonio Pensa, the present director of the institute, inaugurated ceremonies in commemoration of Prof. Luigi Sala, and delivered an address in which he eulogized Sala and his anatomic "school." The speaker recalled that the University of Pavia had had a number of illustrious teachers of anatomy; among others, Marcantonio Della Torre, who instituted the method of the direct study of the cadaver and of anatomic preparation; Gabriele Cuneo, who was a pupil of Vesalio, and Leone Careano, the advocate of the comparative trend of scientific research and noted for certain anatomic discoveries of fundamental importance, he being the true discoverer of the foramen ovale, and not Botallo, as has been asserted. He gave also an exact description of the ductus arteriosus, correcting some of the statements of Botallo. Gaspare Aselli followed, his name being associated with the lymphatic system and with the discovery of the chyliferous ducts.

The speaker recalled also the vast eclectic work of Antonio Scarpa, surgeon, physiologist and oculist, likewise a great anatomist, and of Bartolomeo Panizza, from whose "school" came such eminent histologists as Bizzozero and Golgi Luigi. Sala was a worthy exponent of the great traditions of the anatomic school of Pavia. He was a great observer, technician and critic, and produced many works on anatomy and histology. In addition, he reorganized the laboratory of his institute on modern lines, and rearranged the Museo anatomico and the library. He died, May 16, 1930.

BERLIN

(From Our Regular Correspondent)

May 26, 1931.

The Hygienic Exposition in Dresden

The Internationale Hygiene-Ausstellung, which reopened, May 6, is arranged this year to make a more immediate appeal to the layman. An attempt has been made to avoid unduly technical terms and statements, without yielding anything from the standpoint of clearness and accuracy. An entirely new section "Diagnosis and Treatment" reveals the thoroughness, the complex nature and the heavy responsibilities of the medical profession. The set-up brings out that only the physician, who knows the normal body thoroughly, can recognize and cure pathologic departures from normal. It is the opposite of the exhibit presented last year, which revealed the manifestations of quackery and superstition. The management has enlarged a section that awakened particular interest, namely, habit-forming drugs. The results of morphinism, cocainism and excessive addiction to products bearing nicotine are clearly depicted. In the two first addictions, it is plainly emphasized that addicts are actually ill and must be treated as patients; in the case of nicotine and alcohol addiction that conclusion was avoided. A section termed "health in figures" has the purpose of teaching a correct understanding of medical statistics. With the aid of statistics, sources of error may be exposed that sometimes creep in and disturb a mathematical conception of diseases, thus leading to pessimism whereas actually optimism is in order. Figures showing an apparent increased incidence of certain diseases have often their basis in the fact that new means and methods of diagnosis make possible an earlier and more precise recognition of a disease. Especial interest attaches to the model hospital of eighty rooms, which contains a radium department that has few if any equals. The broad field of industrial hygiene has been completely reorganized. A miniature mine exhibits the large number of arrangements and devices to protect the lives and the health of workmen. The participation of foreign countries this year is gratifying. Austria, Czechoslovakia and France have reorganized their exhibits in a satisfactory manner, having added considerable new material. Likewise, the visitor at the Deutsches Hygiene-Museum will have a surprise awaiting him. Since last year, several new exhibits have been installed, for constant improvement and modernization are characteristic of this museum. The Deutsches Hygiene-Museum is not a museum in the ordinary sense of the word but a live organism, as it were, which, like the human body, which it is intended to serve, constantly renews itself through its inherent dynamic force and thus creates new life out of old material.

Irradiation of Uterine Myomas

At a recent meeting of the Münchener Aerztlicher Verein, Professor Zweifel spoke on "Treatment of Uterine Myomas, with Especial Reference to Irradiation." From 15 to 20 per cent of all women suffer, at one time or another, from uterine myomas. Myomas may remain without symptoms or they may lead to severe manifestations. Half of all myomas should be operated on earlier. The operative mortality ranges from 2 to 4 per cent. In more than 80 per cent of the cases, irradiation may replace an operation. Roentgen rays are far more suitable for irradiation of uterine myomas than are radium rays. Irradiation of myomas is effected in one or two sittings, with an interval of six weeks in the latter case. The irradiation should be directed toward the ovaries. Through destruction of the germ epithelium, ovulation and menstruation are brought to a standstill, and an artificial climacteric is brought about. As with the natural climacteric, the uterus now atrophies and the myomas become diminished in size. The criteria of recovery are the cessation of hemorrhages and retrogression of the tumors. Often myomas as large as a child's head recede completely.

One Hundred Cases of Pyemia Following Sore Throat

Professor Claus, otologist, of Berlin, as he recently announced at a meeting of the Berliner medizinische Gesellschaft, has made observations on about 100 cases of severe pyemia following disorders of the mouth and pharynx. The patients came for treatment in small throngs with intervals between. An especially frequent observation was thrombosis of the facial vein; thrombosis of the jugular vein was less frequent. Occasionally, only an infiltration of the vascular sheath without demonstrable thrombosis but with severe metastases was observed. An undue sensitiveness on pressure was always detectable at the angle of the mandible. Chills are a striking and alarming symptom but not the initial chills occurring during the first three days of sore throat. The diagnosis "pyemia" must not be reached too hastily if there are still manifestations about the tonsils. Pyemia must be differentiated from agranulocytosis, leukemia and diphtheria. If there are no changes to be observed in the tonsils, then other diseases commonly associated with chills and intermittent fever, such as malaria, pyelonephritis and erysipelas, must be ruled out. Analysis of the blood picture is essential, especially in tonsillar manifestations. Characteristic for the clinical picture, in addition to the pain on pressure at the angle of the mandible, is the severe objective and subjective general condition, the subicteric cyanotic complexion, dry tongue, and the small, fre-

quent and soft pulse. With reference to the pathogenesis, attention was called to the fact that an inflammatory process in the retrotonsillar tissue (a phlegmonous process) is involved. That produces an involvement of the vascular wall from without, first in one place and then in another, and leads to thrombosis. Precise researches at necropsy necessitate the application of special technic. The prognosis in the severe forms is almost without exception unfavorable, unless early operative intervention is resorted to. The operation consists in the exposure of the vascular area from the clavicle to the tonsillar bed; ligation of the jugular vein if that vein or the facial vein is thrombosed; otherwise, ligation of the facial vein is sufficient. Tonsillectomy should be performed in the cases in which no phlegmon leads to the tonsillar bed; otherwise it is not necessary; at least not immediately. The results have improved with this procedure and early operation (from 70 to 80 per cent of recoveries). It is therefore necessary to pay more attention than formerly to this syndrome, which is often difficult to diagnose but which, if early operation is instituted, offers much better chances for recovery. Operative treatment of sepsis following sore throat is preferable to any antiseptic or medicamentous therapy.

Death of Prof. Dr. Otto Küstner

The death of Geheimer Medizinalrat Prof. Dr. Otto Küstner, formerly ordinarius in obstetrics and gynecology at the University of Breslau, at Trossin (Kr. Torgau), at the age of 82, is announced. The deceased was an honorary member of the Kaiserlich-Deutsche Akademie der Naturforscher and of other learned societies. Küstner served as a university instructor at first in Halle, Jena and Dorpat, until, in 1893, he was called to Breslau as the ordinarius and director of the Universitäts-Frauenklinik. In 1923, after thirty years of meritorious service, he retired from active duty. Küstner became prominent chiefly through the introduction of many new operative methods in gynecologic diseases. His chief work is "Lehrbuch der Gynäkologie," which has passed through nine printings and is exceedingly popular.

CAPE TOWN

(From Our Regular Correspondent)

April 17, 1931.

Presidential Addresses

The first quarter of the year is the time for the presidential addresses of the various branches of the medical association. It is the custom never to discuss these addresses but merely to move a vote of thanks to the author. Among those delivered recently is that of Dr. E. Dru Drury, president of the eastern branch, with headquarters at Graham's Town, one of the old towns of the Cape Province. Dr. Dru Drury, a general practitioner, is known throughout South Africa as a cultured and able writer, and his essays are always worth reading. He took as his subject "Myths and Maps," and in the course of a charmingly discursive yet intimate review of medical practice during the last half century managed to touch on several subjects of practical importance, from a national insurance scheme to the physiology of hearing. His address was a model of what such things should be, but a model difficult to follow, for it showed painstaking care in its preparation, a wide range of reading, and an originality of mind which is rare in this part of the world.

Another presidential address of interest was that of Dr. Daneel, president of the Cape Western branch. Dr. Daneel, who is a consulting surgeon, gave a review of medical history in South Africa for the past two decades and urged that greater use should be made of the assets which we possess. He pleaded for the establishment of a chair for hydrotherapeutics and nature treatment, and also for the erection of polyclinics for combined diagnosis and follow-up treatment, referring to the Red Cross activities at Madrid as an ideal model to be followed here. Following an old though, for the past twenty-five years, an obsolete custom, he gave part of his address in Afrikaans, an example which will no doubt be followed by other presidents in order to give effect to the growing sentiment in favor of bilingualism.

Language Difficulties

Afrikaans is a young language, as yet unstandardized and with no authoritative dictionary. Its spelling is still subject to periodic modifications. For political reasons it has been promoted far beyond its practical usefulness, and recently a reaction has set in against the indiscriminate tendency to make new words for it while perfectly good equivalents in modern Dutch are at hand. Afrikaans is a Dutch dialect which has developed independently of the Dutch of Holland in an environment which lacked much of the cultural stimulus to which the development of modern Dutch owes so much. Its enthusiasts now wish it to be fully equal to modern Dutch, and some of them—usually those who are not authorities—declare that it is a language in which even medical science can be faithfully expounded.

The Forthcoming Medical Congress

The fourth annual scientific meeting of the Medical Association of South Africa, which is also the twenty-fifth South African medical congress, will take place at Johannesburg in the third week of September. The president of the congress is Dr. Francis Napier, O.B.E., one of the highly respected medical men in the union, who is a consultant ophthalmologist at Johannesburg. Dr. Napier qualified from St. Bartholomew's Hospital in 1887 and came to South Africa for the sake of his health, where he soon won a practice and a reputation as an ophthalmic surgeon. He took an active part in Transvaal politics and after the Boer war was for a time a member of the legislative council. He has published several papers on his special subject and may be looked on as practically the doyen of the medical profession in Johannesburg. He was one of the prime movers in the amalgamation between the old British Medical Association and the South African Medical Association. His selection as president of the congress has given general satisfaction.

Dentists Claim Title of Doctor

Discussion has been aroused by the claim made by some dentists that they are justified to call themselves doctors. At a recent meeting of the medical council a resolution was passed to the effect that the council would not interfere with dentists who styled themselves doctors on their plates. At a later meeting, when the full implications of this resolution were realized, an attempt was made to rescind it but was unsuccessful. Now there is a feeling that such a resolution is against the public interest and that it should be rescinded, while on the other hand many dentists claim that it is merely a recognition of their rights. They point out that many doctors, conjoint diplomates, those who have passed the arts examination of Holland, and those who hold M.B., B.S. or B.Ch. degrees from British and Scottish universities or from our own union universities have no right to style themselves Dr., while the D.D.S. has such a right, being academically a doctor. They complain that while there are over 600 dentists on the register, only 88 possess a D.D.S. degree, and that these call themselves "doctor" and so give the public the impression that they are superior to the L.D.S. On close examination, it appears to be a long standing grievance which most people feel should be alleviated. Under the legal opinion obtained by the medical council it is clear that the council cannot grant dentists the right to call themselves "Dr." if they are not academically entitled to that honor. It is true that the dentists who claim that the council may do so have obtained another, and contrary, legal opinion, but it is not so full nor so convincing as that on which the council circularized its members. Nor can there be the slightest doubt that in this country, as in England generally, the title doctor implies,

in the mind of the public, the ability to treat patients medically. The fact that some dentists who hold the D.D.S. degree call themselves Dr. has nothing to do with the case. Doctors, who are getting tired of the controversy, would be in favor of the council prohibiting the use of the term "Dr." on the door plates and simply allowing the degree or diploma letters to be given behind the practitioner's name. This would put an end to the misapprehension that may exist in the public mind.

Sporotrichosis

Goldberg and Pijper record in the *Journal of the Medical Association of South Africa* the first case of sporotrichosis in a white patient in this country. The disease was reported in 1927 by Pullinger and Pijper among native miners, and two years later by Parkin and Robinson in a horse. The patient in this case was a German who has been seven years in this country; the lesion was a scapular abscess in which typical *Rhinocladium beurmanni* was found on cultivation. It is possible that the disease is more common than is supposed, but that it is overlooked. Actinomycosis is by no means rare, but is also possibly mistaken for other conditions in many cases. There is ample scope for investigation into the etiology and bacteriology of the various skin conditions which are generically termed "veld sores."

Native Witch Doctors

A number of native practitioners, who have had no training, continue to practice in Zululand and Natal. They are privileged by the medical act, for when that measure was passed a strong plea was made to allow those who had not been debarred from acting as native injangas, or medicine men, to continue to practice on condition that they paid their annual license. Some 600 native medicine men were allowed to continue practice. It is said that they increasingly dispense European medicine. The Natal chemists allege that this interferes with their trade and lately introduced a bill into parliament to prevent the injanga from dispensing proprietary medicines. The bill was withdrawn, the minister of native affairs pointing out that if the injanga abused his privilege the department could by regulation prevent him from prescribing medicine. There is little doubt that these native injangas, who are little else but witch doctors, do harm, but they possibly do some small amount of good and, in the absence of regular medical services for natives, their existence must be tolerated.

BUCHAREST

(From Our Regular Correspondent)

April 30, 1931.

The Plight of the Medical Profession

The general economic crisis that prevails over the country is a catastrophe to private practitioners, who are accumulated in great numbers in large cities. This is not to be wondered at since small towns dispense with all cultural requirements for a learned man. The consequence of the desperate unemployment is that physicians are consulted only in grave cases. To this has to be added that the price of medicines is high. Roumania has no pharmaceutic industry. All medicines are imported. Foreign medicaments are encumbered with four profits before they reach the patients: first there is the country representative of the firm, then the provincial agent, then the wholesale druggist and then the chemist. If every one of them adds 20 per cent to the value of the drugs, then only the rich people—who are few—can afford to buy them. For instance, the price of a box of a bismuth preparation containing ten vials with a content of 2 cc. each for injection costs at the local chemist's 370 lei ($2.30), the price of two medical visits in the patient's home, and the cost of 20 English pounds of beef. Such charges are prohibitive to patients whose earning power is low. They just don't go to the doctors at all. This fact induced city practitioners to take steps to reduce the price of medicines and establish district pharmaceutic storehouses, which would distribute foreign drugs among chemists without the addition of any intermediary profit, thus saving about 40 per cent in the price. The idea was accepted and now it is hoped that shortly this bar to medical practice will be removed. Another remedy for the unemployment of physicians will be the introduction of a new order to be issued by the ministry of health according to which an accumulation of positions will be prohibited. At present there are many doctors who fill three or four positions (sickness club doctors, state railway doctors, polyclinic and eventually school doctors). These will have to resign all but one position, either salaried or nonsalaried. This regulation will obtain positions for many young practitioners. Another remedy will be the law on retirement; according to this law all public officials beyond 58 years of age will have to retire and hand over their posts to younger men. After thirty years' service they are entitled to full pension and after less service in proportion. The law on cumulation of positions has already passed the senate. It does not fully satisfy those who are unfortunate enough to have no position at all. The text of the law is not yet published but in authentic circles it is rumored that the law is limping a bit. At the debate on the proposed law in the administrative committee of the senate, the premier acceded to a modification of the law whereby those who at the time of coming in force of the law had more than one position shall not be regarded as cumulists, if the income connected with their positions does not exceed the payment of a member of the government. Strictly interpreted, this modification means the legalization of illegal cumulation of salaried positions.

Examination for Unrestricted Practice

A committee which was delegated by the medical faculty of the Bucharest university, presided over by Dr. Balacescu, the dean, elaborated a regulation for the examination of those who want to carry on "libera practica" (unrestricted practice). The committee proposed that in Roumania only such qualified physicians be allowed to carry on medical practice who produce all the necessary documents before the ministry of health and obtain the right to unrestricted practice, which has to be announced in the official gazette of the country. The medical faculty accepted the proposal of the committee and forwarded it for approval to the ministry of health. The examination will be oral and written and will comprise also the examination of patients and of laboratory specimens. There will be five examining professors—three university professors and two ministerial delegates—and each one will question the candidate for ten minutes. All answers will be graded from 1 to 20, and only those will pass whose average is at least 15. If the average is under 15 the candidate will be rejected for three months and if it doesn't reach 12 in six months he will be rejected for one year. If he fails to reach the required average at the second sitting, the candidate is obliged to present himself at the university and pass all the final examinations. The examination fee for unrestricted practice is 8,000 lei ($50), which fee has to be paid also on the second examination.

Annual Congress of the Roumanian Medical Association

The annual congress of the Roumanian Medical Association will be held this year in Constanze, a beautiful sea bathing place on the Black Sea, June 13-15. The most notable addresses will be given by Professor Cantacuzino on preventive vaccination against tuberculosis by Calmette's method; Professor Zotta, endemic malaria in the delta of the Danube, in the valley of the Pruth River and in the neighboring districts; Professor Balacescu, treatment of coxalgia; Professor Gane, the first century of Roumanian health legislation. In connection with the congress excursions will be made on the Black Sea up to Balcic, and to some prominent sea bathing places. Mamaia, Carmen-Sylva and Teki-Ghiol will be visited.

Marriages

WILLIAM H. JEFFERYS, Philadelphia, to Miss Ann Prophet of Mount Morris, N. Y., June 9.

HENRY THOMAS BURNS, New York, to Miss Frances Salisbury Hamrick, May 30.

JOHN R. HAMILTON, Nassawadox, Va., to Miss Gladys Lee of Richmond, June 10.

JOHN SRAIL, JR., Cleveland, to Miss Dorothy Jane Koons of Medina, June 16.

ALFRED H. GRIESS, Boston, to Miss Phyllis Rice of Nebraska City, Neb., June 11.

FRANCIS X. MCCORMICK, Milwaukee, to Miss Alice F. Reynold, April 16.

Deaths

Elmore Callaway Thrash ✙ Atlanta, Ga.; University of Louisville (Ky.) School of Medicine, 1891; member of the House of Delegates of the American Medical Association, 1926-1931; member of the American College of Physicians and the Radiological Society of North America; formerly councilor and president of the Medical Association of Georgia; past president of the Georgia State Tuberculosis Association, the Fulton County Medical Society and the Chattahoochee Valley Medical Association; professor of pathology and bacteriology, Atlanta School of Medicine, 1905-1914, and professor of diseases of the chest, Atlanta Medical College, 1914-1917; on the staffs of the Grady Hospital, Davis Fischer Sanitarium and the Georgia Baptist Hospital; aged 63; died, June 22, of coronary occlusion and chronic myocarditis.

Reynold Webb Wilcox, Princeton, N. J.; Harvard University Medical School, Boston, 1881; professor of medicine, New York Post-Graduate Medical School, 1884-1908; member and past president of the American College of Physicians; past president of the American Congress of Internal Medicine; formerly on the staffs of St. Mark's Hospital, New York, the Ossining (N. Y.) Hospital, the Eastern Long Island Hospital, Greenport, N. Y., the Nassau Hospital, Mineola, and the New Jersey State Hospital, Greystone Park; served during the World War; author of "System of Case Records," "Materia Medica and Therapeutics," "Treatment of Disease" and others; aged 75; died, June 6.

George William Boot ✙ Evanston, Ill.; Sioux City College of Medicine, 1893; University of Pennsylvania School of Medicine, Philadelphia, 1898; member of the American Academy of Ophthalmology and Oto-Laryngology and the American College of Surgeons; formerly assistant professor of laryngology and otology, Rush Medical College, Chicago, and assistant professor of laryngology, University of Illinois College of Medicine; aged 61; on the staffs of the Children's Memorial Hospital, Durand Hospital, Cook County Hospital, Illinois Eye and Ear Infirmary, and the Grant Hospital, Chicago, and St. Francis' Hospital, Evanston, where he died, June 14, of septicemia and diabetes mellitus.

Carroll Gideon Bull, Baltimore; Lincoln Memorial University Medical Department, Knoxville, Tenn., 1910; member of the American Association of Pathologists and Bacteriologists and the Society of American Bacteriologists; professor of immunology, Johns Hopkins School of Hygiene and Public Health; pathologist to the Lincoln Memorial Hospital, Knoxville, Tenn., 1910-1912; assistant to the Nelson Morris Institute for Medical Research, 1912-1913; assistant and associate in pathology and bacteriology, Rockefeller Institute for Medical Research, 1913-1917; served during the World War; aged 46; died, May 31, in the Sheppard and Enoch Pratt Hospital, of intestinal obstruction.

Ennion Gifford Williams ✙ Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1897; member of the House of Delegates of the American Medical Association, 1902, 1916, 1921 and 1928; since 1908 health commissioner of Virginia; emeritus professor of preventive medicine, Medical College of Virginia; president of the Richmond Academy of Medicine, 1906-1907; Conference of State and Provincial Boards of Health of North America, 1915-1916, and president of the Medical Society of Virginia, 1917-1919; for three years member of the city council; aged 57; died, June 6, of cerebral hemorrhage.

Robert Howell Taylor Mann ✙ Texarkana, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1893; member of the American Academy of Ophthalmology and Oto-Laryngology, the American Laryngological, Rhinological and Otological Society and the American College of Surgeons; member of the State Medical Association of Texas, and past president of the Arkansas Medical Society; oculist and aurist to the Texarkana Sanitarium and St. Louis Southwestern Railway Hospital; aged 63; died, April 16, of carcinoma of the sigmoid.

John Asbury Sutcliffe, Connersville, Ind.; Bellevue Hospital Medical College, New York, 1872; member of the Indiana State Medical Association; emeritus professor of genito-urinary surgery, Indiana University School of Medicine; formerly member of the board of health of Indianapolis; aged 86; died, May 18, in a sanatorium at Martinsville.

Louis Githens Witherspoon, Presidio, Texas; College of Physicians and Surgeons, Chicago, 1898; member of the American College of Surgeons; served during the World War; formerly on the staff of the El Paso (Texas) Smelter Hospital; aged 58; died, April 19, in Alameda, Calif.

Louis Wilson Bishop ✙ Medical Inspector, Commander, U. S. Navy, retired, Brooklyn; Long Island College Hospital, Brooklyn, 1896; entered the Navy in 1901 and was retired in 1928; member of the American College of Surgeons; aged 59; died, May 31, of epidemic encephalitis.

Louis D. Dickerson ✙ McComb, Miss.; Bellevue Hospital Medical College, New York, 1894; formerly member of the state board of medical examiners; on the staff of the McComb City Hospital; aged 61; died, June 4, of pneumonia, following an operation for appendicitis.

Edward John Semple, Westmount, Que., Canada; McGill University Faculty of Medicine, Montreal, 1893; formerly demonstrator of surgical pathology at his alma mater; for many years on the staff of the Western Hospital, Montreal; died, April 20.

Willard Oliver Dutton, The Dalles, Ore.; Jefferson Medical College of Philadelphia, 1889; member of the Washington State Medical Association; aged 68; died, March 30, of erysipelas of the face and neck, abscess of the chest, and chronic nephritis.

James Roe Snyder ✙ Sacramento, Calif.; Syracuse University College of Medicine, 1912; member of the American Society of Clinical Pathologists; city bacteriologist; aged 42; died, April 18, in the Sutter Hospital, of chronic nephritis.

Anna S. Ingerman, New York; University of Berne Faculty of Medicine, Berne, Switzerland, 1893; aged 63; died, May 19, in the New York Polyclinic Hospital, of peritonitis and paralytic ileus, following an operation for carcinoma.

James Thomas Clark, Hammond, Ind.; Rush Medical College, Chicago, 1884; member of the Indiana State Medical Association; for two years secretary of the board of health; aged 70; died, May 29, of carcinoma of the lip.

Raymond Roscoe Wall, Memphis, Tenn.; University of Tennessee College of Medicine, 1917; served during the World War; aged 35; died, May 19, in the Isolation Hospital, of complications as the result of sinusitis.

Robert Stockton Johnson Mitcheson, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1891; on the staffs of the Lankenau and Kensington hospitals; aged 67; died suddenly, May 29, of heart disease.

Josiah Medbery, Columbus, Ohio; Columbus Medical College, 1878; formerly professor of anatomy, Ohio State University College of Medicine; aged 78; died, May 23, of lobar pneumonia and arteriosclerosis.

Walter Weyman Benton, Winder, Ga.; University of Virginia Department of Medicine, Charlottesville, 1923; aged 29; died, May 16, in the Trudeau Sanatorium, Trudeau, N. Y., of pulmonary tuberculosis.

Joseph Kerr McCready ✙ Columbus, Ohio; Ohio State University College of Medicine, Columbus, 1923; served during the World War; aged 36; died, May 18, in the Grant Hospital, of cerebral hemorrhage.

James Clarence Daniel, Decatur, Ga.; University of Georgia Medical Department, Augusta, 1902; member of the Medical Association of Georgia; aged 61; died, May 15, of cerebral hemorrhage.

John Casey Wright, Clear Lake, Iowa; State University of Iowa College of Medicine, Iowa City, 1880; member of the Iowa State Medical Society; aged 80; died, May 14, of pleurisy and hiccups.

John Shelley Saurman ✱ Salem, Ore.; Temple University School of Medicine, Philadelphia, 1909; aged 45; died, May 16, in the University of California Hospital, San Francisco, of heart disease.

John Chisholm Fraser ✱ Weymouth, Mass.; Bellevue Hospital Medical College, New York, 1876; on the staff of the Weymouth Hospital; aged 77; died, May 27, of cerebral hemorrhage.

Joseph Bernard Cohen ✱ New York; University and Bellevue Hospital Medical College, 1907; on the staff of the Lebanon Hospital; aged 47; died suddenly, May 29, of meningitis.

William Patrick Clancy ✱ Warren, Pa.; Baltimore Medical College, 1910; on the staff of the Warren General Hospital; aged 49; died, May 11, of acute gastritis and hepatic cirrhosis.

Abner Farned, Russellville, Ala.; Memphis (Tenn.) Hospital Medical College, 1895; member of the Medical Association of the State of Alabama; aged 67; died, May 17, of leukemia.

Gustavus S. Junkerman, Cincinnati; Medical College of Ohio, Cincinnati, 1884; also a dentist; dean of the Cincinnati College of Dental Surgery; aged 72; died, May 22, of cholecystitis.

Roland Lee Martin, Providence, Ky.; University of Louisville School of Medicine, 1898; member of the Kentucky State Medical Association; aged 57; died, May 21, of heart disease.

Louis Philip Hottendorf, Cincinnati; Medical College of Ohio, Cincinnati, 1871; member of the Ohio State Medical Association; aged 84; died, May 20, of lobar pneumonia.

Leo Rosenfield, Brooklyn; Long Island College Hospital, Brooklyn, 1930; aged 25; intern, Bushwick Hospital, where he died, May 13, following an operation for appendicitis.

Alice Butler Croy, Chicago; College of Physicians and Surgeons, Keokuk, Iowa, 1898; aged 64; died, May 26, in the Chicago State Hospital, of cerebral arteriosclerosis.

Alva LeRoy Chapin ✱ Niagara Falls, N. Y.; Harvard University Medical School, Boston, 1896; aged 60; died, April 15, of dilatation of the heart, toxemia and dermatitis.

Clarence Woodburn ✱ Central City, Ky.; Louisville (Ky.) Medical College, 1884; served during the World War; aged 67; was killed, May 24, in an automobile accident.

Joseph Meredith Catching, Hazlehurst, Miss.; Medical Department of the University of Louisiana, New Orleans, 1883; aged 74; died, May 18, of coronary thrombosis.

G. W. Barlow, Lake, Miss.; Louisville (Ky.) Medical College, 1889; member of the Mississippi State Medical Association; died, May 14, of cerebral hemorrhage.

Millard S. Brown, Fort Valley, Ga.; Atlanta Medical College, 1888; member of the state board of health; aged 64; died, May 8, of influenza and endocarditis.

J. B. Lohan, Charleston, W. Va.; College of Physicians and Surgeons, Baltimore, 1915; formerly city health officer; aged 41; died suddenly, May 13, of heart disease.

Thomas A. Kirkman, Siler City, N. C. (licensed, North Carolina, year unknown); aged 71; died, May 24, of paralysis due to an automobile accident in 1926.

Augusta Zuber, Los Angeles; University of California Medical School, 1911; aged 50; died, April 15, in St. Vincent's Hospital, of agranulocytic angina.

Herzon U. Daugherty, Vinita, Okla.; Medical College of Ohio, Cincinnati, 1878; aged 79; died, March 18, of angina pectoris and diabetes mellitus.

William Robert Inge Dalton, Seattle; St. Louis College of Physicians and Surgeons, 1884; Confederate veteran; aged 89; died, May 25, of senility.

Gideon Lanning Barber, Chicago; Hering Medical College, Chicago, 1894; aged 87; died, June 14, of aortic stenosis and chronic nephritis.

Charles Henry Andrews ✱ Buffalo; University of Buffalo School of Medicine, 1888; aged 65; died, May 23, of heart disease.

W. B. Pruitt, Glen Rose, Texas (licensed, in Texas, under the Act of 1907); aged 66; died, May 12, of angina pectoris.

James F. Young, Monticello, Ky.; University of Louisville School of Medicine, 1890; aged 71; died, May 11, of uremia.

Joseph Thomas Loughlin ✱ Brooklyn; Albany Medical College, 1914; aged 39; was shot and killed, May 24.

Bureau of Investigation

THE INSOLOID (INSUROL) FRAUD

The Insurol Company of America, Inc., and Officinal Products, Inc., Debarred from the Mails

For the past year or two, there has been exploited from New York City and Bridgeport, Conn., a particularly vicious piece of quackery directed against diabetics. The nostrum involved was known, first, as Insurol and was sold by Officinal Products, Inc., of 276 West 43rd Street, New York City. The usual "come-on" literature of the mail-order quack that was sent out on the stationery of Officinal Products, Inc., was signed "Otto Probst, Manager." The advertising stated that Insurol Tablets "combine insulin with the actual substance of the pancreas gland" and they were described as "a triumph of Germany's biochemical laboratories."

Later, the name of the concern was changed to the Insurol Company of America, Inc., which operated from 991 Broad Street, Bridgeport, Conn. Follow-up letters sent out from this address were signed "H. C. Young, President." About the time this change was made, there was also a change in the name of the product from Insurol to Insoloid. The public was told, in effect, that Insoloid was merely a new name for Insurol, the change having been made because "the word Insurol resembles the trade name of products of other concerns." The facts were that there was no resemblance between Insurol and Insoloid!

One of the most disconcerting features in the exploitation of this fraud lay in the fact that the official organ of the College of Pharmacy of the City of New York, Columbia University, accepted an advertisement of this swindle. The Insoloid quacks immediately capitalized this advertisement by reproducing it, describing it as an editorial and sending the reproduction throughout the country. Furthermore, reputable lay magazines accepted advertisements of Insoloid tablets apparently on the basis that similar advertisements had been accepted by the College of Pharmacy of Columbia University. It appears that when the official organ of the College of Pharmacy of Columbia University found that the Insoloid outfit was using the advertisement, that it had accepted, as a "come-on" in this mail-order fraud, the advertisement was discontinued and a complaint was made to the Federal Trade Commission. Just what excuse the

journal had for accepting such advertising in the first place does not appear.

On April 9, 1931, the postal authorities delivered to Miss Helen C. Young, who is the president of the Insurol Company of America, Inc., and apparently the moving spirit of this concern, a copy of charges, together with a citation calling upon the Insurol Company to show cause why a fraud order should not be issued. On April 21, Helen Cornelia Young, as president of the Insurol Company, notified the Postmaster General that she and her company would be represented at the hearing on April 29. On that date, however, the postal authorities received a telegram from Nathaniel Ellenbogen, an attorney, stating that he had applied to the United States District Court for an injunction to restrain the fraud-order proceedings and requesting that the hearing be adjourned until a decision had been made. As no order had been issued by the court, Mr. Ellenbogen's request was denied. When the motion for injunction was called on May 5, Attorney Ellenbogen had the matter postponed to May 12, in order that he might file an amended bill. No amended bill was filed and on May 12, Judge John C. Knox denied the motion for an injunction.

On May 14, the Insurol Company was again advised that they would be afforded a further opportunity to appear on May 21 and be confronted with all the evidence in the possession of the government. On the morning of May 21, the postal authorities received a telegram, purporting to have been signed by Attorney Ellenbogen on behalf of the Insurol Company and Helen C. Young, in which various false and defamatory statements are said to have been made and in which the respondents declined the further opportunity to be heard. The next day, another telegram came from Attorney Ellenbogen, stating that the previous telegram had been sent without his knowledge or consent and that he did not approve its tenor or its wording.

The original quackery—Officinal Products, Inc.—was incorporated September 23, 1929, with one thousand shares of stock of no par value. Its officers were E. A. Bertram, President, and Helen C. Young, Secretary and Treasurer. The Insurol Company of America, Inc., was incorporated May 21, 1930, also with one thousand shares of stock of no par value. The president of the new company was Helen C. Young, the vice-president, Caleb Evans, and the secretary, Charles O. Young. It conducted its business from Bridgeport, Conn. The change in location may be explained by the statement made by the postal authorities, that an application by the Insurol Company for registration of its product with the New York City Department of Health had not been granted. More recently, although most of the business has been conducted from Bridgeport, Conn., the concern has obtained desk room in the office of the Keep Shirt Company in New York City.

Most of the information previously given and most of that which follows is taken from the memorandum of the Hon. Horace J. Donnelly, Solicitor of the Post Office Department, to the Postmaster General. From this same memorandum, we learn that on April 2, this year, Miss Young called at the office of the Solicitor, to protest against the investigation of the Insurol Company of America and, at that time, denied any knowledge of or connection with Officinal Products, Inc. Later, when she found that the government had evidence of the fact she admitted that she was connected with it.

The Solicitor's memorandum shows that although the advertising stated, either directly or by implication, that Insoloid tablets were the same as Insurol tablets, the facts were they were entirely different. Insurol tablets were keratin-coated and contained animal tissue (probably derived from the pancreas). They did not contain boldo, jambul; myrtillin, bean-pod tea, or lithium benzoate. Insoloid, on the other hand, was an uncoated tablet and contained all of the products just named, except pancreatin. It did not contain insulin.

Experts who appeared for the government introduced uncontroverted testimony to show that neither Insurol tablets nor Insoloid tablets would cure diabetes and that neither was, in any sense, a substitute for insulin administered hypodermically. It was proven that the taking of two or four of these tablets after each meal would not enable the diabetic to resume a normal diet, as claimed; it would not relieve diabetes; it would not keep the blood sugar normal, nor would it prevent acidosis, gangrene, and other symptoms of diabetes.

As in all fake diabetes cures, although the advertisements of Insurol and Insoloid stated that the preparations would relieve diabetes without rigorous dieting, the victim found, after purchasing, that he was warned to guard his diet and, if he followed the directions, was actually on a rigorous diet.

Helen C. Young's fakery obtained its victims in the way usual to mail-order frauds—by advertising in those papers and magazines that are not above furnishing the contact between victim and swindler and by the purchase of "sucker lists" from companies that are in that business. There was further brought out at the hearing a fact that is common to the exploitation of practically all fake cures for diabetes—namely, that the preparation contained several diuretics. In this connection, we cannot do better than quote part of an item that appeared in The Journal, January 31, 1931, page 377, dealing with Insurol. At that time, The Journal said:

> "In diabetes quackery, two elements are nearly always found: The first is that of requiring the person who uses the nostrum to adopt a diet that is low in carbohydrates. This in itself naturally tends to lower the sugar output. The second, and more common, is that of incorporating in the nostrum a diuretic that, by stimulating the kidneys, will bring about a larger excretion of urine in the twenty-four hours. The average diabetic patient usually has some rough-and-ready method of estimating the amount of sugar excreted *in any given specimen*. Such patients seldom, if ever, measure the total amount of urine passed in the full twenty-four hours. Obviously, if the amount of urine passed in twenty-four hours is largely increased, the percentage of sugar in any given specimen is decreased, although the actual quantitative excretion of sugar may even be increased."

On the basis of the government's investigation of this swindle, Solicitor Donnelly, in his memorandum to the Postmaster General, stated that it was a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and he recommended that a fraud order be issued against the Insurol Company, Inc., H. C. Young, President, Officinal Products, Inc., Otto Probst, Manager, at New York City and Bridgeport, Conn. Following the recommendation, Postmaster General Walter F. Brown issued an order debarring these concerns from the mails on June 10, 1931.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CARBON TETRACHLORIDE AS A HEALTH HAZARD IN DRY CLEANING

To the Editor:—Numerous requests for permits to install and operate "dry-cleaning" machines, using carbon tetrachloride as the cleaning fluid, by local dry-cleaning and pressing firms have recently been received by our health department. There appears to be a new manufacturing concern which is placing a dry-cleaning unit on the market that is much cheaper and has a greater capacity than the recognized "Zoric" unit but which requires close human contact and handling of the damp garments, which have been cleaned, in their transfer from the machine to the drying room. Available literature on this subject points to the active toxicity of carbon tetrachloride both in commercial use and as an anthelmintic. May I ask if there are any standards for machinery set-up or any industrial hygiene regulations standardizing the use of this compound in commercial enterprises? Thus far I have been unable to secure any information along this line on which to base a decision relative to the advisability both of issuing permits for installation and to the development of regulations governing their use (if installed).

John W. H. Pollard, M.D., Evanston, Ill.

Answer.—The Retail Credit Company of Atlanta, Ga., in a recent study of the processes and hazards of the dry cleaning and dyeing establishments, includes the following statements with reference to the toxicity of carbon tetrachloride:

"The noninflammability of carbon tetrachloride has long favored its use as a dry cleaning detergent. Odors retained in garments cleaned by this substance have earlier served as a deterrent to its application. In recent years it has been established that these odors largely result from impurities in the

carbon tetrachloride. Purification by repeated distillation has paved the way for more extensive utilization of this substance.

"Avoidance of the fire hazard through the use of carbon tetrachloride has introduced a potential hazard to the health of workers. While no significant effects are likely to develop as a result of exposure to small amounts of carbon tetrachloride as used in 'spotting work,' the quantities used in more extensive phases of dry cleaning may be manipulated in such a manner as to constitute a hazard. Large scale operations in open systems are likely to provide harmful concentrations of vapors in the air.

"Recent developments have provided completely enclosed systems for carbon tetrachloride dry cleaning. In these systems all washing, extracting, drying and airing are carried out under conditions that preclude any exposure to carbon tetrachloride, so long as the devices are operated in the proper manner.

"The harm produced by carbon tetrachloride may be (*a*) local, in the form of a dermatitis; (*b*) acute, in the form of inflammation of the eyes, respiratory tract, with pneumonia, pulmonary hemorrhage, etc., or (*c*) chronic intoxication, characterized by degeneration of the liver, nephritis, etc. In one severe case the patient's condition was inaugurated by vomiting, dizziness and abdominal pain. Later he became unconscious, which state lasted for four days, during which period the urine was suppressed; the pulse was feeble, slow and irregular; the liver was enlarged and tender, and the eyes were jaundiced. This patient eventually recovered.

"The threshold of danger to human beings is not precisely known. The greater number of animal experiments have centered about concentrations that kill within a few hours or days. Of far greater significance are the much lower concentrations that produce few or no obvious acute results but eventuate in extensive damage to such organs as the liver. When the respired air contains as little as one-twelfth grain of carbon tetrachloride per liter, irritation of the eyes results, accompanied by mental dulness and drowsiness within a few hours. Three times this amount may produce narcosis among workers.

"The use of carbon tetrachloride in dry cleaning establishments under conditions that provide appreciable concentrations in the respired air should not be condoned.

"Until future work establishes safety zones for carbon tetrachloride, concentrations in the respired air of dry cleaning establishments should not attain to 0.16 per cent by volume, which amount may produce slight symptoms of intoxication after several hours' exposure. In view of the fact that carbon tetrachloride, when highly heated, may decompose into phosgene, its use in fire extinguishers, inside of buildings, constitutes a dubious practice."

In the absence of promulgated standards and regulations with reference to the use of carbon tetrachloride in dry cleaning establishments, the following should tentatively influence decisions:

1. The use of carbon tetrachloride for dry cleaning purposes other than "spotting work" in completely open systems should be forbidden.

2. The use of carbon tetrachloride in semiclosed systems should be forbidden, except under conditions preventing the concentration of vapors in the respired air at any point in the work room to exceed 0.1 per cent of carbon tetrachloride by volume.

3. Ventilating systems controlling the air in any room in which carbon tetrachloride is used for cleaning purposes should completely change the air at least once in every three minutes.

4. All workers engaged in the cleaning out of receptacles designed to catch the dirt removed from garments by the carbon tetrachloride, in any system that does not provide for the sweeping of air currents over these chambers, should wear effective positive pressure air masks with hose connections, throughout the period of cleaning.

5. As the heating of carbon tetrachloride to high temperatures (up to 200 F. is believed to be safe) may lead to the formation of phosgene gas, any condition providing for the fortuitous heating to high temperatures of carbon tetrachloride should be forbidden.

6. Placards indicating the toxic nature of carbon tetrachloride should be conspicuously displayed in all dry cleaning establishments using this substance.

Experimental work now in process may necessitate some revision of statements made with reference to the upper limit of safety. If 0.16 per cent of carbon tetrachloride by volume brings about trivial manifestations after a few hours' exposure, sustained contact with much lower concentrations may prove to be harmful.

POSSIBLE MENTAL DISTURBANCES WITH SYPHILIS

To the Editor:—I have a patient who has been suffering with arthritis for about ten years. She has been to every one on the Pacific Coast, I think, and I was chosen as one of the many to try to unravel her difficulties. The history, physical examination, laboratory work and roentgenograms are negative, with the exception of a 2 plus Wassermann reaction and some indefinite fibrosed condition of the wall of the stomach. She has no history or other signs that the Wassermann reaction should be positive, although she knows nothing about her parents, being an orphan girl apparently who grew up among good people and married a fine type of man. She suffers most unmercifully all the time. Her joints are more or less stiff but can be moved by active motion. I have tried everything that I know of and that I have seen advertised in medical journals, and I cannot find a thing that will stop the pain. Her suffering is so intense that morphine ought to be a blessing to her, but it acts just the opposite. She seems to be quite free from pain whenever she has company that pleases her. I have tried every kind of a psychic stunt I could think up. She is well educated, intelligent, cooperates and wants to get well; she has an idiosyncrasy to everything that might help her along antisyphilitic lines. She has left me two or three times and has gone to San Francisco hospitals and had elaborate technical work done, yet she keeps coming back. I cannot find anything in any book I have that even refers to a circumstance like this. I might add that the fibrosed condition of the stomach apparently is not a disturbing feature. I think she could eat tin cans and shavings, her digestion is so good. She has a moderate colitis, but I have seen so many so much worse that I cannot pay much attention to it. If focal infection has any influence, no one on the coast has been able to find where the infection is. Has any one on earth ever heard of such a case as this?

LOUIS L. SHERMAN, M.D., Oakland, Calif.

ANSWER.—Such cases are common in the practice of the psychiatrist. The trouble is mental and evidently requires the attention of an expert in that line. The Wassermann reaction should be repeated and checked with the Kahn test. If these seem to sustain the diagnosis of syphilis, a spinal fluid examination would be in order. Whether the mental trouble has any relation to the syphilis, if the latter is proved, is a question for the neurologist.

PREVENTION AND TREATMENT OF DENTAL CARIES

To the Editor:—I have a child, aged 4, who weighs 43 pounds (19.5 Kg.) and is 40 inches (101 cm.) tall. He has never had any serious illness except that one year ago his teeth became carious. I started the child on a diet rich in vitamin D and prescribed cod liver oil, 8 cc., after meals, for six months. During the last six months I added viosterol, giving 10 drops three times daily and have increased the dose to 60 drops three times daily. I have not seen any results in the teeth. Can you advise any additional treatment?

S. J. LEVINE, M.D., Grover, Colo.

ANSWER.—Cod liver oil is an excellent addition to a growing child's diet, especially during the so-called dark months of the year. It is concerned, however, largely with the development of unerupted teeth and bones rather than with the control of caries of teeth. Viosterol contains vitamin D but is also most important as to development. The dosage for a child of 4 years should not be more than 10 drops a day. It would seem that the dosage being used is not only excessive but possibly dangerous as well.

There are other factors that influence the control of decay of teeth, including:

1. Limiting the carbohydrate intake of foods, such as bread, potatoes, pastries and sweets.
2. Addition of vitamin C in the diet. This is found in fresh ripe fruits, such as oranges and grapefruit.
3. Having adequate calcium and phosphorus intake in foods.
4. Careful mouth hygiene.
5. Keeping all cavities well filled.
6. Keeping all teeth in function.

TREATMENT OF ACQUIRED SYPHILIS IN INFANT

To the Editor:—Please give procedure in treating syphilis (acquired) in a baby, aged 1 year. CHARLES S. GREENE, M.D., Canton, Ohio.

ANSWER.—The treatment of the year-old baby for acquired syphilis under ordinary conditions of practice is probably best conducted either with sulpharsphenamine and bismuth or with bismuth arsphenamine sulphonate, as both procedures require only an intramuscular technic. If the sulpharsphenamine-bismuth procedure is used, treatment should begin with sulpharsphenamine, 0.025 Gm. every third or fourth day, for three or four injections. The dose may be then cautiously increased to 0.05 Gm. every fifth day, and after about the eighth injection to 0.075 and 0.1 Gm. every seventh day. It is possible, in a large, well nourished baby, to go as high as 0.15 Gm. once a

week intramuscularly; but with the combined bismuth therapy this should be regarded as the upper limit. As soon as the interval between injections of sulpharsphenamine reaches seven days, bismuth may be given intramuscularly, using any one of the acceptable salts of moderately rapid absorption, such as the salicylate. The bismuth injection should be given during the week, between each two sulpharsphenamine injections and under no circumstances should be substituted for the sulpharsphenamine itself. The dose should not exceed from 25 to 35 mg. of bismuth metal per week. The length of the sulpharsphenamine course should be approximately fifteen injections, and of the bismuth course from ten to fifteen injections. The interval between sulpharsphenamine courses should be four to six weeks, this period being covered by the administration of bismuth. A total of thirty or thirty-five injections of each drug should be considered a minimum if the tolerance permits. Mercurial inunctions may be used after the completion of the sulpharsphenamine and bismuth courses but they should not be used during the sulpharsphenamine treatment. Exfoliative dermatitis seldom occurs in infants, but sulpharsphenamine is conspicuously uncertain in this particular and in the production of hemorrhagic accidents.

Bismuth arsphenamine sulphonate is probably the second choice in a case of this sort but is simpler to give, as the bismuth and arsphenamine therapy are combined in the same drug. A dosage of from 0.025 to 0.1 Gm. in a series of forty injections at intervals of five to seven days is not excessive. Rest intervals not properly covered by bismuth treatment and the use of the Wassermann test to regulate the discontinuance and reduction of treatment will result in relapses in the acquired syphilis of infancy, as in adults. Fortunately, the child responds to treatment better than the adult with respect to involvement of the central nervous system, but this does not do away with the necessity for a spinal fluid examination at the second or perhaps the third year. It goes without saying that such a child must be kept under observation throughout life and that the general rule is that treatment should be continued at least for a year after the total disappearance of every sign of the disease, both clinical and serologic.

USE OF ATROPINE IN EYE

To the Editor:—Can atropine, 1 per cent solution, used as a mydriatic, cause any permanent injury to the eye? A patient on whom I used this solution six months ago states that several medical men, among them a prominent ophthalmologist and a university clinician, have informed him that the eye has been damaged beyond help because I used atropine after the removal of a foreign body. Please omit name. M.D., California.

ANSWER.—Yes, provided there exists glaucoma or a predisposition toward glaucoma on the part of the patient. Otherwise the use of 1 per cent atropine as outlined could cause no permanent injury to the eye. This case illustrates well the danger of indiscriminate use of atropine after removal of a foreign body, a practice that ophthalmologists have been preaching against for many years and that gradually is falling into disuse.

IS DIABETES HEREDITARILY TRANSMISSIBLE?

To the Editor:—I am desirous of learning the latest opinion on the theory that diabetes mellitus is hereditarily transmissible. A girl, aged 4 years, died of bronchopneumonia complicated by diabetes, the diabetes having been discovered at 1 year of age and the insulin requirements having varied between 20 and 60 units daily until her death. The mother is desirous of bearing another child and has a fear that the offspring will be born with diabetes. What are her chances of bearing a normal child? This mother has another daughter, aged 7 years, who is normal and shows no trace of deficient sugar metabolism. I have examined the members of both sides of the family tree and fail to locate any case of diabetes or any illness that was undiagnosed. Please omit name.

M.D., Illinois.

ANSWER.—There is an hereditary element in diabetes, but the percentage of diabetes in the descendants of diabetic persons is still so low that one cannot bar marriage.

Among a certain group of 715 diabetic children living and dead there were 31 children who had brothers or sisters with the disease. In a more recent series of 500 living diabetic children in 498 families there were 24 families in which a brother or sister had diabetes.

It is generally agreed that the nondiabetic brothers and sisters of persons with diabetes transmit the disease as well as diabetic persons themselves. This fact of itself makes it impracticable to forbid marriage and the bearing of children in diabetic families.

WRIST DROP OF UNKNOWN ETIOLOGY

To the Editor:—The children of the local schools have been given diphtheria toxin-antitoxin. Several of them have had peculiar reactions. This consisted of drop of the right wrist in two of the cases and in one of the two wrists in several other cases. The last of the injections were given, February 15. The children have felt well otherwise. The wrist drop in the case I now have under observation showed itself three days ago. There is no swelling and no pain in this case or in the other cases that were investigated. I have suggested immobilization of the wrist in the case that I have under observation. Would this be due to delayed effect from the toxin-antitoxin? In any case, what would you advise in the way of further investigation? Is there any literature on this subject as to the cause and treatment? This condition is improving. Kindly omit name.

ANSWER.—We know of no relationship between diphtheria toxin-antitoxin administration and wrist drop. Other causes, such as lead poisoning, should be sought.

IDIOSYNCRASY TO PORK

To the Editor:—I have a patient who has an idiosyncrasy to pork. Can anything be done except to cut pork out of the diet?

E. L. GIBSON, M.D., Alicia, Ark.

ANSWER.—Desensitization by subcutaneous doses of an extract of pork might be considered, but the technic is difficult and the results are uncertain. Elimination is by far the best procedure, especially when the substance is pork, which can be so easily avoided. Such elimination need not be permanent, for if the patient can avoid the offending food for a year or two the intensity of his idiosyncrasy will often slowly diminish, so that at the end of this period he can tolerate small amounts (perhaps a teaspoonful). Then, if all is well, these small amounts can be increased.

SYPHILOPHOBIA

To the Editor:—A man, aged 21, noticed a triangular excoriation on the glans penis in April, 1930, which developed into a painless triangular ulcer and healed in five weeks. Because of frequent masturbation he attributed the indolence of the ulcer to the irritation thus applied. He attributed the original excoriation also to trauma, thus applied, and did not consult a physician at that time. In November, 1930, having read in a borrowed book of erosive chancres, he became apprehensive and sought advice. There had been two possible exposures to infection in the six months preceding the appearance of the lesion, but he was not certain of the exact dates. Three Wassermann tests at weekly intervals and five at monthly intervals, checked by two good laboratories, have been negative. Wassermann tests on both women with whom he had intercourse were negative. The patient does not remember having a rash or any other manifestations of secondary syphilis but is rapidly developing a syphilophobia in spite of assurances. A routine Wassermann test in June, 1930, as part of an insurance examination, was also negative. This was two months after the penile lesion was noted. Physical examination reveals a light triangular scar on the glans, enlarged supraclavicular nodes only, and no other pathologic condition. Is this series of negative Wassermann reactions, with its time relation to the suspected penile lesion, conclusive of the absence of syphilis under the circumstances described? If not, what other investigation is indicated? Please omit name.

M.D., Pennsylvania.

ANSWER.—Assuming that the patient's syphilophobia has not led him into the error of receiving antisyphilitic treatment from one or more other physicians of which he has said nothing, the series of negative Wassermann reactions obtained are practically conclusive evidence that the penile sore in April, 1930, was not primary syphilis. Had infection with syphilis occurred in April, 1930, the blood Wassermann reaction should have been positive at the time of the patient's first visit in November. There is no indication for repeating the Wassermann test. With a negative series of Wassermann reactions of this sort and without physical evidence of syphilis, no further investigations are indicated. Syphilophobia is a psychiatric problem.

WIDAL TEST AND WASSERMANN TEST

To the Editor:—I have a patient 27 years of age with symptoms of typhoid, but with a negative Widal reaction and also a four + blood Wassermann reaction. The Widal test was made on or about the fourteenth day of typhoid symptoms. Would a four + Wassermann reaction neutralize the Widal reaction?

H. S. ZIMMERMAN, M.D., Cameron, Ill.

ANSWER.—So far as known there are no observations recorded indicating that the presence in the blood serum of the substances which give a positive Wassermann reaction will interfere in any way with the agglutination of typhoid bacilli by serum containing typhoid agglutinins. Perhaps agglutinin tests made later in the course of the disease in the case in question might have given positive results.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

ALABAMA: Montgomery, July 14-17. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

AMERICAN BOARD FOR OPHTHALMIC EXAMINATIONS: Denver, July 23. Sec., Dr. William H. Wilder, 122 S. Michigan Ave., Chicago.

CONNECTICUT: *Regular* (written and endorsement, respectively), Hartford, July 14-15 and July 28. Sec., Dr. Thomas P. Murdock, 147 West Main St., Meriden. *Homeopathic*, New Haven, July 14. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, July 13-14. Sec., Dr. W. C. Fowler, District Bldg., Washington.

HAWAII: Y. W. C. A. Bldg., Honolulu, July 13-16. Sec., Dr. James A. Morgan, 48 Young Bldg., Honolulu.

MASSACHUSETTS: Boston, July 14-16. Sec., Dr. Frank M. Vaughan, 144 State House, Boston.

NEVADA: Reciprocity: Carson City, Aug. 3. Sec., Dr. Edward E. Hamer, Carson City.

PENNSYLVANIA: *Practical*. Philadelphia, July 10-11. Sec., Dr. Charles D. Koch, Harrisburg.

SOUTH DAKOTA: Sylvan Lake Hotel (P. O. Custer), in the Black Hills, July 21. Dir., Dr. H. R. Kenaston, Bonesteel.

WASHINGTON: *Basic Science*. Seattle, July 9-10. *Regular*, July 13-14. Dir., Mr. Charles Maybury, Olympia.

Porto Rico March Examination

Dr. Diego A. Biascoechea, secretary, Porto Rico Board of Medical Examiners, reports the written examination held at San Juan, March 3-7, 1931. The examination covered 16 subjects and included 80 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
George Washington University Medical School		(1926)	81.1
Harvard University Medical School		(1929)	94.3
Central University of Spain Faculty of Medicine		(1930)*	81.3
University of Barcelona Faculty of Medicine		(1930)*	82.6

* Verification of graduation in process.

Kentucky January to May Reciprocity Report

Dr. A. T. McCormack, secretary, Kentucky State Board of Health, reports 10 physicians licensed by reciprocity with other states. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1930, 2)	Illinois
Indiana University School of Medicine		(1918), (1925)	Indiana
Univ. of Maryland Sch. of Med. & Coll. of P. & S.		(1913)	N. Carolina
Washington University School of Medicine		(1923)	Missouri
Ohio State University College of Medicine		(1929)	Ohio
University of Tennessee College of Medicine		(1925)	Tennessee
Gate City Medical College		(1906)	Texas
Medical College of Virginia		(1929)	Virginia

West Virginia March Examination

Dr. W. T. Henshaw, secretary, Public Health Council of West Virginia, reports the written and practical examination held at Charleston, March 17-19, 1931. The examination covered 12 subjects and included 120 questions. An average of 80 per cent was required to pass. Four candidates were examined, all of whom passed. Seven candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Arkansas School of Medicine		(1930)	87.9
Univ. of Maryland Sch. of Med. & Coll. of P. & S.		(1930)	86.3, 86.7
Tufts College Medical School		(1930)	90.1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Indiana University School of Medicine		(1926)	Indiana
Tulane University of Louisiana School of Medicine		(1928)	Louisiana
Detroit College of Medicine and Surgery		(1921)	Michigan
Vanderbilt University School of Medicine		(1925)	N. Carolina
Medical College of Virginia		(1890), (1921), (1928)	Virginia

Hawaii April Examination

Dr. James A. Morgan, secretary, Hawaii Board of Medical Examiners, reports the written examination held at Honolulu, April 13-16, 1931. The examination covered 10 subjects and included 55 questions. An average of 75 per cent was required to pass. Five candidates were examined, 3 of whom passed and 2 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Northwestern University Medical School		(1931)	77
University of Pennsylvania School of Med.		(1926) 84.8, (1930)	75.4

College	FAILED	Year Grad.	Per Cent
Loyola University School of Medicine		(1919)	72.3
Northwestern University Medical School		(1925)	74.7

ADDITIONAL HOSPITALS AND LABORATORIES APPROVED

The Council on Medical Education and Hospitals of the American Medical Association has given its approval to the following hospitals and laboratories since the publication of the last previous list in THE JOURNAL, March 7:

Hospitals Approved for Intern Training:

Woodmen of Union Hospital, Hot Springs National Park, Ark.
Mercy Hospital, Cedar Rapids, Iowa.
Bishop Clarkson Memorial Hospital, Omaha.
St. John's Riverside Hospital, Yonkers, N. Y.
Wesley Hospital, Oklahoma City.
St. Mary's Infirmary, Galveston, Texas.
St. Joseph's Infirmary, Houston, Texas.

Hospitals Approved for Residencies in Specialties:

Leo N. Levi Memorial Hospital, Hot Springs National Park, Ark.
Seaside Hospital, Long Beach, Calif.
Fabiola Hospital, Oakland, Calif.
Samuel Merritt Hospital, Oakland, Calif.
Santa Clara County Hospital, San Jose, Calif.
Silver Cross Hospital, Joliet, Ill.
Truesdale Hospital, Fall River, Mass.
Millard Fillmore Hospital, Buffalo.
New York State Psychiatric Institute and Hospital, New York.
Duke Hospital, Durham, N. C.
Children's Hospital, Columbus, Ohio.

Pathologists Conducting Approved Clinical Laboratories:

Harold S. Sumerlin, M.D., director, Rees-Stealy Clinic, San Diego, Calif.
Charles B. McGlumphy, M.D., director, Protestant Deaconess Hospital Laboratory, Evansville, Ind.
Frederick H. Lamb, M.D., director, St. Luke's Hospital Clinical Laboratory, Davenport, Iowa.
Helmuth Ulrich, M.D., director, Boston Laboratories, Inc., Boston.
Louis H. Braaflladt, M.D., director, Northwest Clinic Laboratory, Minot, N. D.

Book Notices

ARTERIAL HYPERTENSION. By Edward J. Stieglitz, M.S., M.D., Assistant Clinical Professor of Medicine, Rush Medical College, University of Chicago. Foreword by Rollin T. Woodyatt, M.D., Clinical Professor of Medicine, Rush Medical College, University of Chicago. Cloth. Price, $5.50. Pp. 280, with 21 illustrations. New York: Paul B. Hoeber, Inc., 1930.

This volume is, in effect, a critical review of the literature of arterial hypertension brought down to date. The physiology, pathogenesis, etiology, symptoms and treatment of arterial hypertension are presented in as logical and definite a manner as is possible to describe a disease the etiology of which is entirely unknown. While all the essential, known facts concerning arterial hypertension are presented, after reading the book one is left with the feeling that if the truth were known concerning etiology of arterial hypertension the subject matter could be greatly simplified. There is probably much mulling over of unessentials; this is the fault not of the author but rather of the times. It is like describing diabetes before insulin, or pernicious anemia before liver feeding. The discussion of pathogenesis is especially interesting—the effect on the total cross-section of the vascular bed area by relatively small constriction of vessels; the successive stages of irritation, muscular hypertrophy, fatigue, exhaustion, degenerative and connective tissue replacement, and, finally, the necessity of recognizing and applying logical remedial measures prior to the establishment of permanently damaged vessels may be cited. The discussion of the importance of the acid-base balance of the body in relation to renal injury and vascular hypertonus is timely since this field is undergoing intensive scrutiny as applied to all the so-called degenerative diseases at present. The author's original

work on the use of bismuth subnitrate as a remedy for continued use in the treatment of hypertension, together with charts illustrating the point, is presented. The author states that nitrites are continually absorbed from the intestinal canal after the administration of bismuth subnitrate, resulting in a prolonged effect in reducing vascular tonus, similar to the acute result obtained by the administration of nitrites by mouth. This method of treatment has not been unqualifiedly accepted but the theory is attractive and the subject deserves further study. It may well be that the continued use of bismuth subnitrate may find a place in the treatment of arterial hypertension. A summary or recapitulation is to be found at the end of each chapter, and a cross-indexed bibliography of 1,100 references at the end of the volume.

DIE MUSKELHÄRTEN (MYOGELOSEN), IHRE ENTSTEHUNG UND HEILUNG. Von Privatdozent Dr. Max Lange, Oberarzt der orthopädischen Klinik München. Lehmanns medizinische Lehrbücher, Band XII. Cloth. Price, 14 marks. Pp. 194, with 86 illustrations. Munich: J. F. Lehmanns Verlag, 1931.

This book presents the word myogelosen, which means congealed muscle. The book is an interesting exposition of a condition heretofore grouped under the terms myositis, fibrositis, myofibrositis and myofascitis. The clinical picture of the muscle hardenings or myogeloses has been recognized for ten years. The origin dates from the work of Schade and Fritz Lange in 1921. When this condition becomes more generally known, it will no longer be diagnosed as neuralgia or neuritis. Many rheumatic patients suffer from muscle pains due to demonstrable hardenings or areas of myogelosis. The myogeloses occur in acute and chronic rheumatism, infectious diseases, and after muscular overexertion, trauma, strain and exposure to cold. Histologic examinations of the areas of hardening reveal no microscopic muscle changes. The author, therefore, ascribes myogelosis to a change in the colloid state of the muscle protoplasm, produced by chemical changes. These are an increase of lactic acid and reduction in the phosphoric acid content. Sodium phosphate injections cause the myogelosis to disappear. The method of examining for myogeloses, their differential diagnosis and therapy are described and illustrated. These hardenings can be removed by a special form of massage and diathermy treatment. The technic of this "gelotripsie" massage is given in detail. Many cases of so-called muscular rheumatism, pseudosciatica, lumbago, stiff neck and muscle cramps are caused by muscle hardenings and can be relieved by proper therapy. The condition of myogelosen is described and illustrated as it occurs in various locations. The book presents numerous excellent diagrams which enhance the art of medical illustrating.

UNDULANT FEVER WITH SPECIAL REFERENCE TO A STUDY OF BRUCELLA INFECTION IN IOWA. By A. V. Hardy, A. A. Surgeon, U. S. Public Health Service, C. F. Jordan, A. A. Surgeon, U. S. Public Health Service, I. H. Borts, M.D., Chief Bacteriologist of the Laboratories of the Iowa State Department of Health, and Grace Campbell Hardy, M.B., Research Associate, Department of Preventive Medicine of the State University of Iowa. U. S. Treasury Department, Public Health Service. National Institute of Health Bulletin No. 158. Paper. Price, 25 cents. Pp. 89, with illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1931.

This valuable monograph merits wide distribution. The well known contributions of A. V. Hardy and his co-workers to the study of undulant fever in this country provide an authoritative background for the material. While the report is primarily based on the observations in more than 300 cases encountered in Iowa, the authors have presented in concise form the historical, bacteriologic, immunologic, epidemiologic and clinical aspects of the disease. The observations in the Iowa cases are compared with those in the other states of this country and in other countries. The epidemiologic data indicate that undulant fever due to infection with the *abortus* or *suis* varieties of *Brucella melitensis* is widespread, and in regions in which systematic investigations have been conducted the disease has been found to be of frequent occurrence. While cattle have been generally regarded as the chief source of human infection, hogs appear to be an important source of infection in some localities. On the basis of epidemiologic studies, the authors conclude that approximately one half of the cases of undulant fever occurring in Iowa have been due to the ingestion of raw dairy products from infected cows, while the remaining half of the cases appear to have resulted from direct contact with infected animals, their tissues or discharges. The clinical types of the disease, the differential diagnosis and the treatment are given concise and adequate consideration. This bulletin provides the practitioner with an excellent summary of the recent developments in the investigation of undulant fever.

COAL-MINERS' NYSTAGMUS. By G. F. Haycraft, M.R.C.S., L.R.C.P., D.O.M. and S. Paper. Price, 30 cents. Pp. 15. New York: Oxford University Press, 1931

This brochure was prepared as a clinical guide for the "newly qualified practitioner." The author regards nystagmus not as a disease exclusively affecting the eyes but as a general nervous disease in which ocular manifestations may predominate or may be entirely absent. The principal subjective symptoms are failure of vision, photophobia, giddiness, insomnia, and the annoying apparent movements of stationary objects. The physical signs observed by the author in his cases were head retraction, tremors of divers portions of the body, tachycardia, ataxia, vertigo after forward bending, and nystagmus. Miners' nystagmus is nearly always circumductory. The rate of movements is from 100 to 500 per minute. The nystagmus is not always spontaneous but usually may readily be excited. As a new manifestation, the author describes contractions of the fields of vision and color. The extended discussion of the factors of etiology provides no definiteness as to responsible agents. Faulty illumination, cramped positions of work, mine gases, ultraviolet rays from the miners' lamps at the coal face, have all been proposed as the excitant. The clinical picture presented in this brochure suggests general exhaustion from fatigue, combined with a psychoneurotic state, influenced by the availability of compensation. In the United States, miners' nystagmus has never been found—a fact attributed to good illumination, thick coal seams, and superior hygienic conditions. It is noteworthy that coal mining states rarely provide compensation for occupational diseases.

DIE CHRONISCHEN BEINLEIDEN UND IHRE AMBULANTE BEHANDLUNG: KRAMPFADERLEIDEN, BEINGESCHWÜRE, DICKE BEINE, NÄSSENDE FLECHTEN, SCHMERZEN UND CHRONISCHE ENTZÜNDUNGEN DER FUSS- UND KNIEGELENKE. Von Dr. N. Brann, Facharzt für Beinleiden in Berlin. Ärztliche Ratschläge, Nr. 29. Paper. Price, 4.20 marks. Pp. 179, with 30 illustrations. Leipzig: Curt Kabitzsch, 1931.

This booklet deals with the chronic ailments of the lower extremities, such as varicose veins, leg ulcers, swelling of the legs, weeping eczema, pain and chronic arthritis of the knee and ankle joints. These ailments are important because they are prevalent and deprive the sufferers of much of their joy in life. They incapacitate the victim from work. These conditions were long neglected by the medical profession and fell into the hands of the faker and the quack. Much can be done to restore these patients to health and efficiency by ambulatory treatment. The first chapter discusses the anatomy and physiology of the structures of the leg and the back. The second considers the causes of chronic leg diseases. In the third, three important factors are discussed: disturbances in lymphatic circulation, disturbances in blood circulation, and changes in the joints. The fourth chapter emphasizes the social importance of these chronic conditions. The rest of the booklet describes the ambulatory treatment. The author discusses the prevention of recurrences and the care of the legs. It is an excellent presentation of the subject and should prove of practical value to the general practitioner.

A TEXTBOOK OF SURGERY. By John Homans, M.D., Assistant Professor of Surgery. Compiled from lectures and other writings of members of the surgical department of the Harvard Medical School. With a special bibliographical index and with illustrations by Willard C. Shepard. Cloth. Price, $9. Pp. 1195, with 513 illustrations. Springfield, Illinois: Charles C. Thomas, 1931.

With so many textbooks of surgery already on the market, it is surprising that another should be published at this time; yet perusal of the book reveals such variation from the usual textbook that its appearance is warranted. The difference from others of its kind lies essentially in the style. The book is written like a vivid narrative. The fundamentals of surgery are made interesting, easy and pleasant to read and comprehend.

V 19

The work is based on the lectures given by the members of the surgical faculty of the Harvard University Medical School but is absolutely the product of the author. The material is accurate, complete and critical and is concisely and clearly presented. It is absolutely down to date, containing the latest scientific information and standard approved surgical procedures. Only little space is devoted to descriptions of actual operative manipulation and technic, yet whatever is given is sufficient for the scope of a book of this type. The plan of the book is similar to those of other surgical textbooks. Important subjects, however, are given special emphasis. The entire field of surgery is discussed in fifty-six chapters. An attractive feature is that practically each chapter is introduced with an informally written historical sketch containing interesting facts and details in the development of the condition presented. This is followed by a short description of the anatomy and physiology pertaining to the material subsequently discussed. The illustrations, adequate in number, are also a departure from the ordinary. There are no photographs or colored plates. Only line drawings, accurate in detail and artistic in execution, are used to clarify and enhance the value of the text. Though intended primarily as a textbook of the fundamentals of surgery for the undergraduate student, medical men as well as surgeons will find this excellent book useful and interesting.

HANDBUCH DER PATHOGENEN MIKROORGANISMEN. Herausgegeben von W. Kolle, R. Kraus und P. Uhlenhuth. Lieferung 47, Band VII, 2. Teil. Leishmania. Von Dr. L. Everard Napier. Allgemeine Protozoenkunde. Von Prof. Dr. V. Jollos. Third edition. Paper. Price, 26 marks. Pp. 1497-1752, with 120 illustrations. Jena: Gustav Fischer, 1930.

Approximately one fourth of this number is taken up with a monograph on *Leishmania* by Napier of Calcutta, well known for his work on kala-azar. The article was written in English and translated into German by Stilling, an innovation, we believe, for the Handbuch. The larger part of the number is given over to a consideration of protozoa from the general biologic standpoint; it is reasonably concise, very readable, and profusely and beautifully illustrated.

A SURVEY OF NATIONAL TRENDS IN BIOLOGY. By Edward J. v. K. Menge, Ph.D., Sc.D., Director of the Department of Animal Biology in Marquette University. Cloth. Price, $2. Pp. 156. Milwaukee: Bruce Publishing Company, 1930.

This volume includes some lectures delivered by the author before various South American universities and medical organizations. The field of the biologic sciences includes all of the basic medical sciences dealing with living material, and medicine itself. Dr. Menge indicates the background of the various investigations that have been made, traces the history briefly, and indicates the trend not only of discovery in the field of biology but also of biologic thought and theory. His list of noteworthy biologic work and workers is an exceedingly valuable guide for those who want to read generally in the subject and also for those who plan to study abroad. The bibliography, which is extensive, covers contributions by numerous authors, books and periodicals and biologic indexes.

LA COLLAPSOTHÉRAPIE DE LA TUBERCULOSE PULMONAIRE: PNEUMOTHORAX ARTIFICIEL INTERVENTIONS CHIRURGICALES. Par Michel Léon-Kindberg, médecin des Hôpitaux de Paris. Second edition. Paper. Price, 22 francs. Pp. 181, with 19 illustrations. Paris: Masson & Cie, 1931.

The book contains chapters on the essentials of treatment by means of pneumothorax. While urging the early use of lung collapse, the author displays his knowledge of the dangers that so often beset the procedure; while recognizing the benefits of the rest-dietetic methods of treatment, he says that it is not safe to depend on them to the exclusion of collapse therapy, the latter being the one great addition to the treatment of tuberculosis. In spite of his championship of pneumothorax, the writer seems to lean too much toward the old Brauer dictum that there must be one sound lung or else collapse should not be attempted. The author takes the stand that pneumothorax is often merely a unit in the scheme of treatment, meaning that pleural adhesions thwart the final success of the procedure. To obviate this difficulty one should resort—carefully and circumspectly—to intrapleural cutting of the adhesion. Summing up, the author groups together hygienic and dietetic treatment, sanatorium care, pneumothorax and, if needed, intrapleural surgery. This view will find much approbation in this country. The reader will not be burdened by the numerous references which are given at the end of each chapter. The book indicates the deep comprehension of the subject by the author.

Miscellany

REPORT OF CONFERENCE AT MANILA, JAN. 9-23, 1931, UNDER AUSPICES OF LEONARD WOOD MEMORIAL FOR ERADICATION OF LEPROSY

The advancement of the knowledge of leprosy has been retarded, in recent years, by difficulties that are inherent to its investigations and by the divergence of views and practices that have developed among those engaged with its problems. The areas in which the disease is prevalent or endemic are widely separated, and the affected populations differ greatly in racial characters, in social practices and traditions, in political organization and in economic status. With the hope that current views might be harmonized and new avenues of approach to the entire subject suggested, the trustees of the Leonard Wood Memorial Fund for the Eradication of Leprosy recently provided the means for a conference, at Manila, of some of those who are interested.

Dr. N. E. Wayson of the U. S. Public Health Service reports that the conference convened, Jan. 9, 1931, with twenty-three attendants, including the members of the Leprosy Commission of the League of Nations, clinicians, directors and administrators of public health measures, and those concerned in technical investigations, from China, Dutch Guiana, Federated Malay States, Fiji, Formosa, Hawaii, India, Indo-China, Japan and the Philippine Islands. A program of subjects to be considered was arranged by the conference, and the discussions were carried out in round-table sessions. In connection with, and supplementary to, these sessions, a visit was made to several sites of the activities in the Philippines, including the Culion colony.

It was the sense of the conference that leprosy is a systemic disease rather than one affecting only the skin and its appendages, and that it is communicable rather than congenitally acquired. The general opinion was that patients with leprosy can be benefited by treatment. However, the therapy most likely to be successful is that which involves the application of general medical and hygienic measures as well as those which are intended to stimulate particular reparative processes, since the drugs that have been used are not specific remedies for the disease.

The use of the term "cure" in referring to the results obtained by treatment was also discouraged because it may be misleading and is frequently misinterpreted. It was suggested that those cases in which recovery has occurred to the extent that there have been no positive clinical and microscopic observations for a period of two years or more be designated as "arrested cases."

Cases were classified with regard to their clinical manifestations, and also with relation to their probable or presumable infectivity.

Since the disease may be disseminated throughout the body and evidence of both neural and dermal involvement is usually and probably always obtainable, it seemed evident that the reference to cases as "mixed" served no useful purpose, and this designation was omitted. A practical division or grouping of cases was agreed upon on the basis of the predominance of the respective conditions found. These were described and defined as "neural" or "cutaneous." A subdivision into three classes or degrees was made in each of these groups. Provision was also made for a grouping of those cases in which the condition is resultant to previous involvement of the nervous system but in which evidence of active disease processes can no longer be obtained by clinical methods. These were classed as "secondary neural" cases.

The terms maculo-anesthetic and tubercular were disapproved, since they are both misleading in their descriptive application to the lesions or grouping of lesions in leprosy. The use of "maculo-anesthetic" has resulted in mistaken conceptions of the relationship of sensory disturbances in the clinical picture; and "tubercular" is frequently confused with a tuberculous condition. Some of the characteristics that are peculiar to lesions of leprosy were added to the definition of the terms, which are generally accepted as the attributes of such lesions. This is especially applicable to the use of the term macule.

For purposes of institutional and public health administration, and in order to provide a common means for the comparison of therapies, clinical progress of a case was considered to be of three phases; namely, active, quiescent, and arrested. The criteria for the evaluation of progress with respect to one or another of these classes were elaborated.

The discussions of methods of examination concerned themselves largely with details of technic, but much stress was laid on the importance of making proper neurologic tests and of careful and repeated microscopic examinations. The latter measure is essential in the administrative classification of cases and may be of assistance in their clinical grouping.

TREATMENT

The entire conference was convinced of the futility of attempting to treat leprosy by the administration of some one or another drug to patients, in the mass. The opinion prevailed that it was essential to successful therapy to treat the individual patients for concurrent disorders that might play an important rôle in the course of leprosy and whose relief might result in favorable progress toward recovery from the latter. The importance of the application of general medical and hygienic measures was emphasized. However, it was recognized that the disease is one in which stimulation of special reparative processes in the patient is required. The means by which this may be accomplished were considered to be of both physical and chemical or of combined physicochemical nature. Physical measures are exemplified by the various applications of physical therapy, and combined physicochemical or chemical methods include the topical use of carbon dioxide snow and the administration of drugs either by mouth or parenterally. The drugs that have been used most widely have been preparations of oils, especially of oils of the chaulmoogra group. The use of these has been attended with results that are regarded as satisfactory to some clinicians. However, the conference indicated the importance of accurate and thorough methods in the use of any remedy over an extended period of time, and of careful control observations, before conclusions of its therapeutic efficacy may be reached. Data relative to the therapeutic value of any drug in recovery from the disease were not presented for discussion, but the advisability of obtaining such was recognized, and the follow-up of cases was advocated.

RESEARCH

The handicap to progress in the treatment and control of leprosy is intensified by the lack of accurate knowledge concerning it. Information is needed of its epidemiology, including its incidence in countries, races, families and individuals, and the effect on its incidence of diet, of social and economic influence, and of other factors, as well as of its pathogenesis, its manner of dissemination inside and outside the body, the relation of natural immunity and the development of acquired immunity, the pharmacology of agents of use in its therapy, and bacteriologic and other biologic phenomena. In order to stimulate the acquirement of some of this urgently needed knowledge, a program of research was outlined.

LEPROSY ASSOCIATION

The final discussions were devoted to procedures by which it seemed that greater progress might be made in the subject. These culminated in the formation of the International Leprosy Association, whose purpose will be to aid and foster measures for its control and investigations, and the publications of a journal of leprosy, which will collect and present material pertinent to the issue to those who may be interested.

The report was published in the *Philippine Journal of Science*, Manila, in April, 1931.

Medicolegal

Diagnosis as Part of Treatment

(Hester v. Ford (Ala.), 130 So. 203)

The plaintiff, Hester, injured his ankle. No x-ray machine was available, and the plaintiff refused to take an anesthetic. The defendant physician therefore administered morphine and examined the injury by sight and touch. He found a fracture of the tibia at the joint, set it and applied splints. Several weeks later a roentgen examination showed that the fibula was fractured some two or more inches above the joint and that the fragments overlapped. An operation was necessary. Thereafter the plaintiff sued the defendant for malpractice. One of the counts of the plaintiff's complaint charged that the defendant negligently failed to use in and about "said *diagnosis and treatment*" of the plaintiff's injury reasonable care, skill, or diligence. Another count charged that the defendant failed to use in and about "said *diagnosis*" of plaintiff's ankle such care, skill, or diligence as was reasonably necessary to ascertain the character of the injury. Judgment was rendered in favor of the defendant physician. The patient appealed to the Supreme Court of Georgia, which affirmed the judgment in the physician's favor.

Apparently, the principal error of the trial court urged on behalf of the patient was the following instruction to the jury:

> Unless you are reasonably satisfied from the evidence that the defendant failed to exercise reasonable and ordinary care, skill and diligence in the *treatment* of the plaintiff's broken leg and foot, you cannot find for the plaintiff.

This instruction, argued the patient, would excuse the physician from negligence in diagnosis. In common parlance, said the Supreme Court, and often in the law, "treatment" is the broad term covering all the steps taken to effect a cure of the injury or disease. It includes examination and diagnosis as well as the application of remedies. The patient's complaint, it is true, spoke of diagnosis and treatment as distinct. The sense in which terms are used in a charge to the jury need not necessarily conform to the sense in which they are employed in the pleadings; they may become misleading in a given case and call for an explanatory charge. But the giving of this instruction is to be justified on broader grounds. While both counts of the complaint charge negligence in "diagnosis" as a proximate cause of the injury, the only causal connection between such negligence, if any, and the injury was improper treatment, or failure to apply the right treatment because of such bad diagnosis. Neither bad diagnosis nor want of diagnosis alone was sufficient. If the proper treatment was applied, no injury would result no matter what the diagnosis. If the proper treatment was not applied, because either of negligence in diagnosis or of other want of ordinary care, skill or diligence, that treatment would be "negligent," using "treatment" in the limited sense of the complaint. Negligence in "treatment," either in the inclusive or limited sense, was essential to the plaintiff's recovery of damages.

Tuberculosis and Total and Permanent Disability

(Runkle v. United States (C. C. A.), 42 Fed. (2d) 804)

The plaintiff, as beneficiary, sued on a war risk insurance policy issued to Louis Runkle. She alleged that the insured died, March 20, 1923, and that the policy had matured, Nov. 30, 1918, because from that date until his death the insured was totally and permanently disabled. The government denied that the policy had matured by reason of the total and permanent disability of the insured and contended that th policy expired in October, 1918. The only question was whether the insured was totally and permanently disabled prior to Nov. 30, 1918, the end of the grace period afforded by the policy. In the United States district court for the district of Colorado, judgment was given for the defendant and the plaintiff appealed to the United States Circuit Court of Appeals, Tenth Circuit.

It is true, said the Circuit Court of Appeals, that there was no direct evidence on which a jury might find that the insured was permanently and totally disabled in November, 1918. But whether a person with the medical history of the insured in

this case was physically incapable of following continuously any substantially gainful occupation in 1918 presented a medical question, and, in the opinion of the appellate court, the trial court erred in refusing to permit the medical expert witness to express an opinion concerning the matter. The reason for the rule which permits experts to express an opinion on the ultimate question, said the court, and the authorities in support thereof, are exhaustively discussed in *United States Smelting Co.* v. *Parry* (8 C. C. A.), 166 Fed. 407. In that case the court held that the rule which prohibits a nonexpert witness from testifying concerning his opinions or conclusions never was intended to close any reasonable avenue to the truth in the investigation of questions of fact; that the most important qualification to the general rule is one which permits a witness possessed of special training or experience to testify to his opinion when it will tend to aid the jury in reaching a correct conclusion, and that the true test is, not the total dependence of the jury on such testimony, but their inability to judge for themselves as well as is the witness.

Whether tuberculosis is a progressive or nonprogressive disease and whether a particular case discloses a history of rapid or slow progress are medical questions. The evidence in this case disclosed a patient with tuberculosis in 1918, bedfast in October, 1919, with an advanced stage of cavitation in 1921, and death in that year. Whether such a person was necessarily incapable of following a gainful occupation in 1918 is a question on which experts can render assistance to a jury. No rule can be laid down applicable to all cases. The nature of the disease and the time element are both involved. Undoubtedly, said the court, there are diseases in which no honest opinion as to their past duration can be formed from a present examination. There are others in which a definite opinion can be found. But whether such an opinion can or cannot be formed is in itself a question for experts. In the opinion of the appellate court, the district court erred in excluding the evidence offered. The judgment in favor of the government was reversed.

Workmen's Compensation Acts: Refusal of Medical Treatment.—If an injured employee unreasonably refuses to submit to proper medical treatment and as a result his disability or injury is rendered greater or permitted to continue, then such disability or injury as is caused by the unreasonable refusal to submit to treatment is attributed to the voluntary act of the employee and not to the accident. In determining what constitutes a reasonable refusal to submit to medical treatment, the facts and circumstances of the particular case must be inquired into. When a disability can be prevented or removed by a minor and safe operation or by safe medical treatment, it is the duty of the injured employee to submit to such operation or treatment, and a refusal to do so will defeat his claim for compensation for such disability as is caused by his refusal to submit to treatment.—*American Smelting & Refining Co. v. Industrial Commission (Utah), 290 P. 770.*

Insurance: Mental Incapacity as Excuse for Failure to Give Notice of Disability.—A stipulation in an insurance policy requiring that notice be given of disability should be read with an exception reasonably saving the rights of the insured from forfeiture when, owing to no fault of his own, he is totally incapacitated from giving the notice. An insured, therefore, may recover on a policy insuring him against total disability, even though he failed to give the insurance company notice of his disability, when his failure was due to a disease producing mental incapacity to give the required notice.—*Rhyne v. Jefferson Standard Life Ins. Co. (N. C.), 154 S. E. 749; Nelson v. Jefferson Standard Life Ins. Co. (N. C.), 154 S. E. 752.*

Evidence: Admissibility of Hospital Records.—So far as hospital records tend to disclose what physicians have learned in their attendance on a case, they are protected by the rule of privileged communications, as much so as if the physicians were being examined as witnesses in person. In the absence of any waiver of the protection of the rule as to privileged communications on the part of a patient, such hospital records may not be introduced in evidence over the patient's objection. —*Toole v. Franklin Investment Co. (Wash.), 291 P. 1101.*

Society Proceedings

COMING MEETINGS

American Association for Thoracic Surgery, San Francisco, July 1-3. Dr. Duff S. Allen, Washington University Medical School, St. Louis, Secretary.

American Surgical Association, San Francisco, June 29-July 1. Dr. Lincoln Davis, 205 Beacon Street, Boston, Secretary.

Montana, Medical Association of, Bozeman, July 8-9. Dr. E. G. Balsam, 208 North Broadway, Billings, Secretary.

National Medical Association, Atlanta, Ga., August 17-21. Dr. Walter G. Alexander, 136 West Kinney Street, Newark, N. J., Secretary.

Washington State Medical Association, Aberdeen, August 3-5. Dr. Curtis H. Thomson, 1305 Fourth Avenue, Seattle, Secretary.

Wyoming State Medical Society, Rawlins, July 13-14. Dr. Earl Whedon, 50 North Main Street, Sheridan, Secretary.

MISSOURI STATE MEDICAL ASSOCIATION

Seventy-Fourth Annual Session, held at Joplin, Mo., May 11-14, 1931

The President, DR. WENZEL C. GAYLER, St. Louis, in the Chair

Hypothyroidism in Young Women

DR. EDGAR D. BASKETT, Columbia, Mo.: Because of the prevalence of hypothyroidism in women in this section of the United States, a study of this condition was made. A total of 113 students in a junior college for women was studied, the group ranging in age from 16 to 20 years. No evidence of tuberculosis, pituitary disease or hyposuprarenalism was found. Of this number the basal metabolic rate ranged as follows: from —11 to —20 per cent in 59, or 52.2 per cent; from —21 to —30 per cent in 19, or 16.8 per cent; from —31 per cent up in 2, or 1.7 per cent; from +10 to —10 per cent (normal limits) in 33, or 29.2 per cent.

In order to determine the prevalence of the condition, sampling of the student body was done. Every twentieth student in alphabetical order was tested. In all, 28 students were tested. The basal metabolic rates were as follows: 11, or 39.3 per cent, in the —11 to —20 per cent group; 2, or 7.1 per cent, in the —21 to —30 per cent group; 1, or 3.5 per cent, in the —31 to —40 per cent group; 14, or 50 per cent, in the +10 to —10 per cent (normal) group.

Quite a large number of the students showing a low basal metabolic rate were placed on thyroid medication. Out of this number 37 continued to take the thyroid throughout a period of from six to seven months; 32, or 87.5 per cent, showed definite subjective improvement. The chief complaints by which a selection was made for basal metabolic rate determinations were tiredness, sensitivity to cold, dry skin, and brittle hair and nails. The ones complaining of tiredness were helped the most.

An attempt was made to determine the effect of hypothyroidism on intelligence by means of the scholastic aptitude test (Thurstone's). This test was given to those students having a low basal metabolic rate who were taking thyroid and to those who were not taking thyroid though having a low basal metabolic rate, as well as to a group of normal students. The test was repeated after six months but there was no evidence of gain in scholastic aptitude. The group taking thyroid showed a slight but definite improvement in regular school grades when compared with students of equal aptitude. Students having a normal basal metabolic rate showed a slightly higher average in aptitude than those having a low basal rate.

Treatment of Thyroid Disorders with Iodine

DR. KERWIN W. KINARD, Kansas City, Mo.: There is now a stronger conviction than ever that no one factor causes goiter but that its etiology is made up in individual cases of many factors, including poverty and its concomitant fellows improper and insufficient food and inadequate clothing. A poor environment is quite enough to provoke goiter, but when it is also associated with a goitrous heredity the potential qualities of cretinism are present. Some of the factors of etiologic importance in goiter development are bad sanitation, lack of or improper hygienic principles, improper water supply, monotonous life, consanguinity, and infections of various sorts. Perhaps, ultimately, a deficiency of iodine, avitaminosis and infections or toxemias might be blamed as the main factors that are causative of goiter. There are now at least five distinct indications for the

use of iodine therapy for goiter. Two of these are of tremendous importance, one for the prevention of goiter in school children and the other for the treatment of toxic goiter prior to operation to lessen toxicity by lowering the pulse, nervous and metabolic rates, thereby affording the patient better sleep and rest. With iodine as a preoperative treatment the mortality has dropped to practically zero.

Dysfunction of the Thyroid Gland

DR. E. P. SLOAN, Bloomington, Ill.: I have never seen a case of heart failure due to mitral regurgitation in an adult. Goiter as a cause of heart failure is frequently overlooked. The conception of goiter heart is, in nearly all instances, an arrhythmic heart due to increased irritability as the result of fixation of the thyroid secretion in the muscle cells. The chief diagnostic features of adhesive pericarditis are feeble or no cardiac impulse, cardiac hypertrophy, enlarged liver, and other symptoms of heart failure without an obvious cause over a long period of time. From this clinical picture the diagnosis of adhesive pericarditis was made on a patient seen last month: A man, aged 42, who, although able to work and earn his living, had had breathlessness and cyanosis on effort, and a tender mass in the upper right quadrant of the abdomen since the age of 9, when he had an attack of rheumatism. Dr. Theodore Ballinger, Jr., of New York examined the patient in 1904 and diagnosed chronic adhesive pericarditis and enlarged liver. An autopsy two weeks ago confirmed the diagnosis made by Dr. Ballinger twenty-seven years ago. This seems to be a record case in duration of life after the making of the diagnosis.

Symptoms Accompanying Ovarian Hypofunction

DR. AUGUST A. WERNER, St. Louis: The conclusions drawn in this article are based on a study of 136 cases of ovarian hypofunction, including 40 female castrates and 96 cases of menopause. The disturbances that accompany ovarian hypofunction may be divided into objective signs and subjective symptoms. Among objective signs are included various types of menstrual disorder, atrophy of the genitals and loss of genital and axillary hair, and development of the gonadal type of obesity. The subjective symptoms render the patient more uncomfortable than do the objective signs. These subjective symptoms may be classified as (1) nervous, (2) circulatory and (3) general. Under nervous symptoms may be listed subjective nervousness, excitability, irritability, headaches, occipitocervical aching, decreased memory and ability to concentrate the mind, depression and crying, psychosis, formication and disturbed sleep. Circulatory symptoms include hot flushes, tachycardia, palpitation and dyspnea on moderate effort without evident cardiac disease, or edema, vertigo, scotomata and tinnitus, cold hands and feet, numbness or tingling. The menopause is more than a cessation of menstrual flow. This is only one of the phenomena that occur at this time. The mechanism of menopausal symptomatology is not limited to insufficiency of the ovaries but is the result of a complex endocrine crisis, which varies in different individuals. In this crisis the predominating feature is gonadal insufficiency, but other glandular disturbances occur subsequently and form an essential part of the crisis. Because of the major importance of the gonads in the endocrine system during active sexual life, insufficiency or cessation of function frequently causes imbalance in other interrelated glands, such as the thyroid, suprarenals (medulla and in some instances the cortex) and the pituitary, especially the anterior lobe. With the disturbance of function in the ovaries and other interrelated glands there is a secondary disturbance of the delicate equilibrium that exists between the two divisions of the autonomic nervous system, with the production of the symptoms described. This group of symptoms might be designated the "menopausal syndrome." This term is not wholly acceptable, for these symptoms accompany ovarian hypofunction other than the menopause. Again, the term "hypo-ovarian syndrome" would be objected to because of the obvious part which the thyroid and suprarenals have in their causation. However, since they are initiated by hypo-ovarian function, this seems to be a fairly descriptive term. It is easy to diagnose ovarian disturbance when it is associated with menstrual disorder or when it occurs at about 40 years of age or in castrates, but when the symptoms mentioned occur before time for the menopause and without much menstrual disorder, there may be failure to recognize ovarian hypofunction as a possible primary cause.

Selective Pneumothorax

DRS. ANDREW C. HENSKE and CHARLES W. EHLERS, St. Louis: Selective pneumothorax permits or causes the collapse or relaxation of the diseased area of the lung without seriously affecting the good lung tissue. It has advantages over the complete and incomplete types: (1) It can be successfully employed in a large group of patients; (2) it puts out of commission only the affected lung area; (3) it causes less discomfort to the patient; (4) there is less displacement of the thoracic viscera; (5) the complication of hydrothorax is about 50 per cent less; (6) the end-results are more satisfactory. In our series of eighty-nine cases in which artificial pneumothorax was carried out the initial inflation varied from 500 to 900 cc., depending on the size of the chest and the ease of entrance of gas. The second inflation, given two or three days later, should be about equal to the initial one. The third inflation, usually about 500 cc., is given three days later. After this, weekly refills of from 500 to 900 cc. are given, care always being taken to leave a negative pressure after each inflation. The collapse should be maintained for from six weeks to two months and then gradually the unaffected lobe or lobes permitted to reexpand by diminution in the amount of gas.

Surgery of Pulmonary Tuberculosis

DR. JAMES LINUS MUDD, St. Louis: The surgical treatment of pulmonary tuberculosis is based on the fact that cavities heal more readily if the walls of the cavity are permitted to fall together. The more important methods of collapsing tuberculous cavities in the lung are artificial pneumothorax, phrenicectomy and thoracoplasty. The ideal patient for compression therapy is a young adult in whom the lesion is of the fibrotic type with unilateral or predominantly unilateral involvement and a fixed mediastinum. Severing the phrenic nerve decreases the capacity of the pleural cavity by paralysis of the diaphragm. Intra-abdominal pressure forces the thinned out paralyzed diaphragm up into the chest cavity. Paralysis of the diaphragm also reduces the respiratory excursion of the lung. In over 50 per cent of the cases in which cavities exist, phrenicectomy will cause these cavities to close. In patients having bilateral involvement, the lesion in the contralateral lung is completely healed in over 25 per cent of the cases.

Determination of Activity in Tuberculosis

DR. GEORGE D. KETTELKAMP, Koch, Mo.: Tuberculous lesions producing tubercle bacilli are considered active lesions. The Schilling differential blood count, if repeated counts are made at intervals, usually indicates whether or not there is an active infection. The tuberculin tests, both subcutaneous and intracutaneous, are helpful. When subcutaneous administration of tuberculin results in a general and focal reaction, it is interpreted to mean that active tuberculosis exists. Most cases failing to react to 10 mg. of old tuberculin subcutaneously administered have no active tuberculosis. A failure to react to tuberculin intracutaneously administered is taken to mean either that no infection has occurred or, having occurred, is thoroughly healed. A comparison of roentgenograms taken at intervals often proves that a lesion is active and progressing even in the absence of other evidence. A single roentgenogram indicates what has transpired in a chest. A series of roentgenograms made at intervals indicates what is transpiring in a chest.

Tuberculosis in Children

DR. SCOTT P. CHILD, Mount Vernon, Mo.: The most susceptible periods of active disease and high mortality are the first two years of life and the adolescent period from 14 to 18 years. Krause shows that the immature and skeletal structure of the lymph glands in the first two years of life permits the early filtering of tubercle bacilli through the system to pulmonary and meningeal tissues. Nine out of forty children in a Missouri county seat public school revealed tracheobronchial and parenchymal tuberculosis in a recent examination by the state sanatorium staff. Scores of families now represented in the sanatorium at Mount Vernon have from one to six infected children, quite invariably acquired from an open adult case in the family. There are two distinct tissues involved

in the childhood type of tuberculosis: the tracheobronchial glands and the true, pulmonary parenchyma. According to location, there are three divisions or classes of the childhood type of tuberculosis: (1) the tracheobronchial type, (2) the parenchymal type and (3) the combined type. Each type has its subdivisions similar to adult tuberculosis, though rather more characteristic because of immaturity and stage of development of tissues involved. The children's department at Mount Vernon is a combined preventorium and sanatorium with the cases classified and segregation of tracheobronchial and parenchymal cases well carried out. Out of 104 cases, 92 gave positive reaction to the intracutaneous tuberculin test. The roentgen ray demonstrated 75 as the tracheobronchial type, 23 as the parenchymal and 4 as the combined type. There have been two deaths in the last two years among 104 cases of white children, one a girl 15 years of age, with the far-advanced parenchymal type, the other a Mexican boy of 8 years who developed an acute meningitis. Four Negro children, with far advanced tuberculosis, died. The vulnerability of the Negro is marked. The treatment of tuberculosis in children is that indicated in adults but it should be individual. Rest and regularity of habits with a well balanced and nourishing diet are the important factors. It is found with individualization that the average tracheobronchial case can go on with a graded school course and can under direction be given a certain amount of exercise and play as well as occupational therapy.

Diagnosis and Management of Injuries to the Chest

DR. O. B. ZEINERT, St. Louis: Advances in chest surgery make it possible to explore as in the peritoneal cavity without special appliances for maintaining the negative pressure over which there formerly was much controversy. The anesthesia is important and a gas-oxygen machine is sufficient to maintain the necessary pressure within the lung. The greatest number of chest injuries are minor and require little treatment besides rest and immobilization. Certain severe crushing injuries of the thorax that produce what is clinically known as traumatic asphyxia may prove serious. The most serious injury to the chest wall is the "stove-in chest." A consideration of injuries to the thoracic contents may be almost restricted to wounds of the lung. A sucking wound of the chest should be closed as soon as possible. Any moist gauze may be used in an emergency. The presence or absence of a pneumothorax is important. Traumatic hemothorax is a common condition. Aspiration is unwise during the first twenty-four hours unless pressure symptoms are present. Injuries involving viscera alone are limited to pulmonary collapse and intrapulmonary hemorrhage with or without a complicating hemothorax. The prognosis in serious chest injuries is grave. Death is usually due to shock or to serious pulmonary complications. Most of the penetrating and perforating wounds of the chest seen in civil practice are best treated expectantly. Bleeding from vessels in the chest wall is easily controlled by passing a ligature completely round the rib. Intrathoracic hemorrhage is controlled by deferring aspiration for forty-eight hours. Pain, dyspnea and cyanosis are relieved by aspirating blood. Lacerated wounds in the lung should be sutured. Empyema and other serious infections result in less than 2 per cent. Abscess of lung, gangrene and pneumonia are rare.

Recent Additions to the Armamentarium for Fracture Reduction and Retention

DR. EDWARD P. HELLER, Kansas City, Mo.: The author presented lantern slides showing the Böhler splint, the Kirschner drill and other appliances that have recently come into use for the reduction and retention of fractures. The work was based largely on experience in the fracture service of the Kansas City General Hospital during the past nine months. In order to contrast the old with the new, slides were first shown of cases treated in 1929 by the routine then in vogue. An equal number of fractures as nearly similar as possible, but treated by means of skeletal traction on a Böhler splint, were then shown. The compound fractures of the tibia were remarkably well retained by means of the Steinmann pin or the Kirschner drill wire passed through the os calcis, with the extremity on the Böhler splint during traction. These patients were usually placed on the Böhler frame on admission to the ward and the malalinement, so common with the antiquated fracture box, was thus avoided. Débridement, as well as placing of skeletal traction apparatus and reduction of the fracture, was usually accomplished with the use of local anesthesia. It was shown how it was possible to make frequent adjustments where this system is used. Fractures of the humerus were treated by means of rustless wire pins through the olecranon, the traction being maintained by means of elastic attached to, or weights suspended over, an outrigging metal loop embedded in the plaster jacket. Besides showing the method of applying traction to fractures of the femur on the Böhler frame, the author showed several slides of a system known as Russell extension. By this method an ordinary bath towel or a sheet of outing flannel is passed beneath the knee of the affected side and, by means of a cord tied to the knotted ends and passed through a series of pulleys, a compounded pull is exerted upward and outward on the femur, and horizontally by means of skin traction on the leg, as in ordinary Buck's extension. The patient is left remarkably free to sit up and move about in bed, and in the few cases in which it was applied it appeared to have all the merits claimed for it by Drs. Gibbon and Lee of the Jefferson Medical College Hospital and Pennsylvania Hospital of Philadelphia. The author and the members of the fracture service at the Kansas City General Hospital feel that a decided step forward has been made in the provision of ample traction on a convenient and comfortable apparatus by the use of the Böhler frame. It is felt, too, that the Kirschner drill will and should replace the Steinmann pin, since the former is much less destructive of tissue and far more adaptable to a variety of locations, from the os calcis to the humerus.

Acute Intestinal Obstruction

DR. ALTON OCHSNER, New Orleans: In a consideration of acute intestinal obstruction it is necessary to differentiate between different types of obstruction: (1) those which are located relatively high in the intestinal tract from those which are located low in the intestinal tract; (2) those in which there is an interference in the blood supply to the intestine from those in which the blood supply is normal; (3) those with mechanical obstruction from those in which the ileus is of the paralytic variety. The symptomatology, prognosis and treatment are dependent on a knowledge of these factors.

Characteristic symptoms and signs of mechanical ileus are colicky, intermittent pain that is accompanied by vomiting in cases of "high" intestinal obstruction. Constipation is a late symptom and little reliance should be placed on it. Not infrequently, several evacuations may occur after the onset of the symptoms. The most significant objective finding consists of increased peristaltic sounds as determined by auscultation. In the adynamic variety of ileus, pain is usually absent but, when present, of a constant and dull character. Auscultation of the abdomen does not reveal peristaltic sounds. Roentgenography of the abdomen without the administration of contrast substances is of great value. The finding of multiple fluid levels produced by the presence of gas and fluid in the dilated loops of bowel is pathognomonic of acute intestinal obstruction, of either the mechanical or the adynamic variety.

The preoperative treatment of acute ileus consists of combating the alkalosis, hypochloremia, and dehydration by the intravenous administration of large quantities of sodium chloride solution. Emptying of the stomach of the gastric contents and regurgitated intestinal contents should be accomplished by means of gastric lavage. Because of the danger of aspiration of vomited material, inhalation or general anesthesia should not be used. Spinal or splanchnic analgesia is to be preferred. The operative procedure should consist of those measures which will relieve the obstruction without jeopardizing the life of the patient. Simple drainage of the dilated intestine proximal to the obstruction may be all that is justifiable in many cases. In cases of adynamic ileus superimposed on a mechanical ileus, the production of multiple enterostomies may be of value. Postoperatively, careful observation of the blood chlorides and carbon dioxide combining power of the plasma should be made. Large quantities of physiologic solution of sodium chloride and 5 per cent dextrose solution should be administered intravenously, subcutaneously and by rectum. Gastric lavage should

be continued until all nausea has ceased. Heat in the form of an electric light tent should be applied to the abdomen.

The treatment of adynamic ileus, either as a distinct entity or that superimposed on a mechanical obstruction, consists of blocking the splanchnic nerves by a splanchnic or a spinal analgesia. The use of drugs in ileus is of little value. The intravenous injection of hypertonic solutions of sodium chloride is of value in many cases of adynamic ileus.

Breech Presentation: The Technic of Breech Extraction

Dr. E. Lee Dorsett, St. Louis: The infant mortality and morbidity to mother and child are unnecessarily high in breech delivery. Even in the hands of expert obstetricians, this condition is fraught with danger. The causes of difficulty in delivery of breech presentation are: (*a*) the premature rupture of the membranes before labor is sufficiently advanced; (*b*) the recontraction of the cervix on the after-coming head; (*c*) the nuchal arm or arms; (*d*) the shoulders; (*e*) the after-coming head. The factors that aid in overcoming some of these obstacles are: (*a*) deep anesthesia; (*b*) proper position of the patient on the delivery table; (*c*) the "ironing out" of the vagina; (*d*) the relaxation of the perineum; (*e*) the skill with which the head and shoulders are delivered.

Spinal Fusion by the Tunneling Method: Motion Pictures

Dr. S. A. Grantham, Joplin, Mo.: By means of a specially devised obsteotome through a transverse incision of 1½ inches, a tunnel is driven from the second vertebra below the affected vertebra to the second vertebra above, sectioning the spinous processes under the uncut lumbodorsal fascia. A tibial graft of suitable length and breadth is secured and slipped into the tunneling obsteotome. The instrument is withdrawn, leaving the graft in situ. The small incision is closed. In the presence of a sharp kyphosis or lordosis a curved tool is required, and a curved bone better meets the necessities. In kyphosis the incision is made caudad to the high point and the tunnel driven as before so as to secure two sound vertebrae above the affected point. The osteotome is then withdrawn and entered in the opposite direction. The tunnel is driven down two vertebrae. A section of whole rib of adequate length is secured and inserted into the tunnel, the osteotome being used as an inverted grooved director. When the limit of the tunnel is reached, the rib is pushed to one side of the sound spinous process and forced down between the fascia and the lumbar or dorsal muscles until the upper end may be engaged in the osteotome (reinserted into the upper tunnel), the instrument again being used as an inverted grooved director, and the graft is slipped into place in the upper position. Accurate placing of the lower end is easily accomplished. The wound is closed as before. The essential time is from seven to ten minutes. The graft, whether straight or curved, is placed in flat on the stumps of the sectioned processes. The physiologic tension of the broad flat muscles of the back and the abdominal muscles tightens the uncut fascia on the graft, forcing the tips of the sectioned processes down on the dorsal surface of the graft and the graft on the stumps of the sectioned processes. The force with which the graft is held in place is demonstrated on attempting to move it after the tunneling osteotome is removed. No sutures or ligatures are required. No brace, cast, Bradford frame or other external device is required. The graft is the splint. The patient lies on a flat bed and is given the fullest freedom as to his movements horizontally. He is not permitted to sit up until the graft is securely united (five or six weeks). In ten days all dressings are removed. The promptness with which immobility of the spine and the corresponding comfort of the patient are secured is startling.

The Trend of Medical Practice

Dr. Morris Fishbein, Chicago: The progress of scientific medicine is, no doubt, chiefly responsible for the increase in the cost of medical education, for the increase in the cost of medical care, for the rise of specialization, and for the tremendous development of hospitals. Modern medical education requires at least eight years of a young man's life at an annual expense of $1,200 a year. Modern scientific diagnosis in a difficult case demands the use of a tremendous amount of scientific apparatus and the application of the highest medical talent. Hospitals have increased from approximately 1,000 in 1900 to 6,719 in 1930. There are today almost 1,000,000 beds available in hospitals, and at least two thirds of all the physicians licensed to practice in the United States are associated with hospitals in some manner. Of the 98,491 physicians now associated with hospitals, 45,000, or almost 50 per cent, are specialists, contrasted with some 15 per cent of specialists in 1905.

Another factor has been the development of technical assistants in medical care, including dietitians, physical therapy technicians, roentgen technicians, nurses, orderlies and social service workers, so that today, in addition to the 155,000 physicians licensed to practice medicine in the United States, there are at least 2,000,000 additional workers who devote practically all their time to the care of the sick. Since labor cost is one of the highest costs in any service, these facts must be considered in connection with the cost of medical care.

The development of university practice, group practice, medical centers, contract practice and industrial practice, and similar changes in the nature of medical practice, has been the response to an attempt to decrease the cost of medical care by lowering the cost of the overhead through better distribution. In every scheme that has been developed, the chief fault is the lessening of personal relationship between the physician and the patient. It is human nature for the worker to feel his responsibility to the source of his income. It is safer for the patient if the physician feels that he is responsible primarily to the patient. Any plan that lessens the responsibility of the trained physician to the patient or that denies him the reward of individual effort or superior ability is detrimental to the welfare of the patient.

There is no evidence that any of the plans adopted abroad, including compulsory health insurance, the panel system, socialized medicine, communistic medicine or state medicine, has successfully answered the problem in any nation. Such methods represent standardization with the glorification of mediocrity. When an attempt is made to reduce professional service to any level, that is usually a low level.

The American people spend a half billion dollars a year for cosmetics, two billion for cigarets, and incredible sums for amusements. They have apparently sufficient money to provide for the best type of medical care. With the genius for organization possessed by the American people, some scheme will, no doubt, be evolved for providing them with the best type of medical care at a price that they can afford to pay when they become willing to pay what they really can for such service. Whatever scheme is developed, however, the personal relationship between the physician and the patient must be preserved.

Postoperative Complications of Appendicitis

Dr. Dudley S. Conley, Columbia, Mo.: In a series of 349 cases of acute appendicitis, pathologic diagnosis of 344 removed appendixes were as follows: acute catarrhal, 17 cases (4.89 per cent); suppurative, 259 cases (74.21 per cent); gangrenous, 68 cases (19.48 per cent). There were 5 cases (1.42 per cent) in which the appendix was not removed; 17 cases (4.8 per cent) showed primary abscess; in 36 cases (10.3 per cent) the appendix was perforated; in 47 cases (13.7 per cent) drainage was employed. In 276 cases (79.08 per cent) there was uncomplicated and uneventful convalescence; in 73 cases (20.92 per cent) some major or minor complication developed or continued. There were 87 complications. Death occurred in 3 cases (0.86 per cent). Progressive and diffuse peritonitis occurred most frequently, with a total of 47 cases. Other complications, in order of frequency, were pneumonia, secondary abscess, subphrenic infection, thrombophlebitis, parotitis, empyema, pleurisy with effusion, and secondary wound infection.

This is a small number of cases, and the mortality and the number of complications are low. The reason is that these were all early cases, the patients, both among the students and in the town circles, being of an intelligent and educated class. As a result, most of the operative cases were examined early when the hazards as to mortality and to complications are little, if any, greater than in the interval operation.

(To be continued)

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

6: 447-588 (April) 1931

*Interpretation of Bundle-Branch Block by Means of Monocardiogram. H. Mann, New York.—p. 447.

*Effects of Digitalis on Premature Auricular Contractions Associated with Attacks of Paroxysmal Auricular Fibrillation: Use of Drug in Treatment and Prevention of Certain Forms of These Arrhythmias. S. P. Schwartz, New York.—p. 458.

Significance of Splintering of Terminal Portion of Q-R-S Deflection of Electrocardiogram. L. Steuer and H. Feil, Cleveland.—p. 472.

*Sino-Auricular Block. A. W. Wallace and L. N. Katz, Cleveland.—p. 478.

Myocardium in Yellow Fever: Myocardial Function in Experimental Yellow Fever. W. Lloyd, Toronto.—p. 483.

Id.: Myocardial Lesions in Experimental Yellow Fever. W. Lloyd, Toronto.—p. 504.

*Change in Size of Heart in Severe Anemia: Case. D. Ball, New York.—p. 517.

*Electrocardiographic Changes in Myocardial Ischemia. H. S. Feil, L. N. Katz, R. A. Moore and R. W. Scott, Cleveland.—p. 522.

*Value of Needle Electrodes in Electrocardiographic Diagnosis. J. McGuire and J. H. Foulger, Cincinnati.—p. 536.

Electrocardiographic Studies in Infectious Diseases. C. Shookhoff and L. M. Taran, Brooklyn.—p. 541.

*Inhalation Treatment of Angina Pectoris and Intermittent Claudication. Y. Henderson, New Haven, Conn.—p. 548.

Monocardiogram in Bundle-Branch Block. — Mann describes a method of analyzing the electrocardiogram by a fusion of the three leads into a single curve or monocardiogram. This method of analysis brings out anatomic and spatial relationships hitherto concealed and facilitates the investigation of such problems as the site and extent of myocardial and coronary lesions, the nature of fibrillation and flutter and the sites of origin of extrasystoles. It is peculiarly well adapted to the diagnosis of right and left bundle-branch block. Numerous applications of this method of analysis show that in right bundle-branch block the electrocardiogram has an inverted main deflection in lead I while in left bundle-branch block the main deflection is upright in lead I. The reasons for previous misinterpretations are discussed briefly.

Effects of Digitalis on Premature Auricular Contractions.—Schwartz reports seven cases of organic heart disease in persons who were subject to recurrent attacks of auricular fibrillation with a rapid and persistently high ventricular rate that did not slow with rest. A large single dose of digitalis administered during the presence of an attack of auricular fibrillation resulted in the slowing of the heart rate within four to five hours when the drug was given orally, or within two hours when it was given intravenously. Restoration to sinus rhythm would not take place, however, until from two to three days after the administration of digitalis. All the signs and symptoms of congestive heart failure precipitated by the disturbances in rhythm would gradually pass away in the presence of sinus rhythm. The administration of small daily doses of digitalis during the presence of auricular fibrillation, in several patients in whom this form of therapy was attempted, slowed the heart rate but did not abolish the arrhythmia or relieve the symptoms and signs. Six of these patients were ambulatory and could carry on their daily restricted activities so long as sinus rhythm was present. A relatively normal sinus rate could be maintained in all by the use of digitalis in small daily doses during the presence of sinus rhythm. If the drug was discontinued for any length of time even when sinus rhythm was present, the premature auricular beats would reappear and be followed by auricular fibrillation with a rapid ventricular rate. If the ventricular rate could not be controlled with digitalis, death would take place within a short time from asphyxia due to pulmonary edema. Because of the unusual response of these patients to variable doses of digitalis in the presence of sinus rhythm as well as of auricular premature beats and auricular fibrillation, they form a distinct group among patients with heart disease and should be given special consideration when encountered in practice.

Sino-Auricular Block.—Wallace and Katz describe a case of sino-auricular block with single and double dropped beats, associated with a prolonged atrioventricular conduction and an occasional dropped ventricular beat. The sino-auricular block was relieved and the atrioventricular conduction improved by atropine, indicating that the sino-auricular block was a vagal effect presumably due to digitalis.

Change in Size of Heart in Severe Anemia.—Ball reports a case of severe anemia due to bleeding fibroids, showing that the dilated heart of anemia may become smaller in size and normal in shape, as proved by teleroentgenograms, soon after the cause of the anemia is checked and the blood picture returns to normal. Cardiac enlargement is a frequent observation in patients with severe anemias. Roentgenologically, the enlarged heart of anemia often cannot be differentiated from the picture of organic valvular disease. The enlarged heart found in severe anemias may decrease in size when the anemia is cured. The cardiac murmurs heard in severe anemias may disappear entirely when the anemia is cured. The finding of an enlarged heart together with the typical physical signs and roentgen picture of organic valvular disease in a patient with a severe anemia, does not in itself indicate organic cardiac disease.

Electrocardiographic Changes in Myocardial Ischemia.—Feil and his associates state that ligature of the ramus descendens of the left coronary artery in acute experiments on dogs caused no characteristic R-T deviations of the electrocardiogram provided the cardiac mechanism remained normal. However, a further impairment in the heart's blood supply induced by ligation of the inferior vena cava for five minutes produced typical R-T deviations as seen in recent clinical coronary thrombosis, with a return to normal after the venous obstruction was removed. The appearance of a disturbance in the cardiac mechanism (extrasystoles and tachycardias) following coronary ligation alone produced R-T deviations. These experiments suggest that R-T deviation is a manifestation of myocardial ischemia in the production of which coronary occlusion is one factor.

Value of Needle Electrodes.—McGuire and Foulger believe that, by the use of needle electrodes and thoracic leads, accurate diagnosis can sometimes be made when the interpretation of electrocardiograms made with the ordinary leads is doubtful. Three cases are cited which demonstrate the value of this method. A simple method for the construction of such electrodes is described.

Inhalation Treatment of Angina Pectoris.—In cases of angina pectoris which are in the earlier stages but in which moderately severe suffering on exertion is already developing, Henderson gives inhalations of carbon dioxide. This is not an emergency treatment but a therapy for prolonged application. The inhalations are not given during an attack of pain but at regular times every day, usually before the midday and evening meals and at bedtime. The patient lies quietly on his back for a few minutes holding over his own face a mask which has a sufficiently large opening to the outside air to offer no resistance to breathing. He is told to keep his mouth open and to breathe deeply rather than rapidly. Then a stream of carbon dioxide gas through a small rubber tube from a cylinder of the pure liquefied substance is fed to the mask. At first the flow is kept small, but as respiration gradually deepens the amount of the gas is increased until at the end of two or three minutes a maximal or nearly maximal depth of breathing is developed. The stimulation is not, however, pushed to the point of increase of rate. This condition is maintained for fifteen or twenty minutes continuously. Then the gas is shut off, and the patient is directed to lie quiet for ten minutes more, so as to avoid the slight giddiness which occurs if he gets up immediately. The effects of this inhalation on the patients thus far treated, as yet only three in number and none with high arterial pressure, have been, in addition to the deeper respiration, as follows: There is

a distinct improvement in the color and temperature of the lips and skin, previously rather bloodless or bluish and cold, but becoming warm and pink under the influence of carbon dioxide on the peripheral circulation. Arterial pressure and the pulse rate are not in appreciable degree increased, although a markedly fuller circulation is evident. The sensation of oppression in the chest and the pain or "pins and needles" in the shoulder and arm is considerably decreased and may cease altogether for some hours after the inhalation. After some weeks of daily inhalations the capacity to take such exercise as walking uphill is markedly increased and the chief difficulty is to prevent the patient from overexerting his partially restored physical capacity. This is all that it seems justifiable to report in an initial communication on a treatment which will certainly need far more evidence before it can be regarded as of proved general therapeutic value. The patients thus far treated have, however, appeared so much benefited and the technic described appears to be so safe, that it seems best to put the matter on record.

American Journal of Diseases of Children, Chicago

41: 747-1008 (April) 1931

*Efficiency of Scarlet Fever Antitoxin. T. Tsuda, Mukden, Manchuria, China.—p. 747.

*Ultraviolet Light in California Summer Sunshine: Especial Reference to Its Value in Prophylaxis and Treatment of Rickets. J. M. Frawley, Fresno, Calif.—p. 751.

*Lactic Acid in Blood in Children. J. S. Leopold and A. Bernhard, New York.—p. 758.

Nephritis in Children: Prognosis and Differential Diagnosis. C. A. Aldrich, Winnetka, Ill.—p. 766.

*Excessive Ultraviolet Irradiation: Effect on Nutrition and Endocrine Glands of Rats. A. F. Hess and P. E. Smith, New York.—p. 775.

*Pulmonary Tuberculosis in Children: Demonstration of Tubercle Bacilli in Gastric Lavage. V. Poulsen, Copenhagen, Denmark.—p. 783.

*Syndrome Characterized by Congenital Clouding of Cornea and Other Anomalies. H. F. Helmholz, Rochester, Minn., and Ethel R. Harrington, Los Angeles.—p. 793.

*Digitalis: Its Value in Treatment of Children with Rheumatic Heart Disease. Lucy P. Sutton and J. Wyckoff, New York.—p. 801.

*Tubercle Bacilli in Children with Erythema Nodosum: Demonstration by Gastric Lavage. A. Wallgren, Göteborg, Sweden.—p. 816.

Rapid Measurement of Red Cells. H. R. Sauder and J. A. Toomey, Cleveland.—p. 823.

Acute Poliomyelitis in Syracuse, New York: Clinical Analysis of Five Successive Outbreaks from 1922 to 1929, with Especial Reference to Epidemiology and Treatment with Serum. A. C. Silverman, Syracuse, N. Y.—p. 829.

Efficiency of Scarlet Fever Antitoxin.—From observations made in the treatment of sixty-two persons with scarlet fever, Tsuda concludes that an injection of scarlet fever antitoxin brings about a marked therapeutic effect, especially when it is administered within twenty-four hours after the onset of the disease. It cures the patient who has scarlet fever and also prevents complications. The injection should be given as soon as possible, for the reason that the longer the treatment is postponed the less the influence of the antitoxin; no effect is to be expected when a patient is given injections seventy-two hours after the onset of the disease.

Ultraviolet Rays in California Summer Sunshine.—Measurements of the ultraviolet rays in the sunlight at three different localities in California were made by Frawley, a modification of Leonard Hill's acetone methylthionine chloride method being used. There was found to be great variation in the ultraviolet content of the sunshine, depending on local climatic conditions. In the central portion of California, where there is an unusually great amount of sunshine, there was a deficiency in the amount of ultraviolet rays. On account of the lessened proportion of ultraviolet rays to visible light rays and heat in the sunshine, the author considers it inadvisable in extremely hot climates to depend on "sun baths" for the prevention and treatment of rickets.

Lactic Acid in Blood of Children.—Leopold and Bernhard found that the concentration of lactic acid in the blood of twenty-three normal children (collected with the use of a tourniquet) varied between 9 and 18 mg. per hundred cubic centimeters of blood, the average being 14.8 mg. There was an increase of lactic acid in blood obtained by application of a tourniquet. In forty-two children with various diseases (whose blood was obtained with and without tourniquets) the increase in lactic acid was from 0.2 to 6.8 mg., the average being 3.1 mg. Of the normal cases the average variation was 2.1 mg. A definite rise in the lactic acid content of the blood was found in cases of pneumonia with fever. In the convalescent cases without fever the values were considerably lower but not within the normal range. In cases of rheumatic fever with cardiac involvement there was found an increase of lactic acid. Patients with chorea also showed an increased concentration of lactic acid in the blood. There was no relationship between the concentration of lactic acid in the blood and the blood sugar. There seemed to be no quantitative relation between the concentration of lactic acid and the carbon dioxide combining power of the blood.

Excessive Ultraviolet Irradiation.—Hess and Smith irradiated two series of rats with the mercury vapor lamp for a period of from five to six months or gave them viosterol. Male as well as female animals were used. Those in the first series were littermates; those in the second series, although not littermates, were the progeny of the first. Three intensities of irradiation were given, mild, moderate and severe. The viosterol was given in small as well as in excessive amounts. The main object of the experiment was to note whether prolonged and intense irradiation or large doses of viosterol had a deleterious effect on the animals, as evinced by the rate of growth and by the size and appearance of the endocrine glands. The growth of the animals subjected to marked intensities of ultraviolet irradiation or given large amounts of viosterol was as good as that of animals which had lived under similar conditions but had not been subjected to irradiation or given viosterol. No difference was noted at necropsy between the endocrine glands of the treated and those of the untreated animals.

Pulmonary Tuberculosis in Children.—Poulsen emphasizes the fact that in children who, as a rule, swallow their sputum, there is the greatest prospect of success when the bacilli are sought in the material obtained by gastric lavage, by means of direct microscopy, cultivation on Petroff's medium and inoculation in guinea-pigs. He found bacilli in twelve of forty-eight cases. Of these twelve patients, two had tuberculous meningitis, and in their cases the test was superfluous; the same may be said of two other children with evident pulmonary tuberculosis. With regard to the other eight, one of whom had pleurisy and one pericarditis, the finding of bacilli was of great diagnostic value. It is the author's opinion that these tests should also be made on older children if there is the slightest doubt about the diagnosis.

Congenital Clouding of Cornea.—Helmholz and Harrington give the case histories of four patients with a syndrome whose characteristics were uniform cloudiness of the cornea, restricted motion of the joints of the extremities, short, thick, clawlike hands and feet, with limited extension, lumbar kyphosis, scaphocephalic head and mental retardation.

Digitalis.—Sutton and Wyckoff report twenty-five cases of digitalization in twenty-two patients with heart failure associated with active rheumatic heart disease. In twenty-four digitalizations of twenty-one children, the average calculated dose necessary to produce the effect of digitalis was 0.15 cat units per pound of body weight (the range was from 0.114 to 0.19 cat units per pound). All these patients showed some improvement in the signs of heart failure when fully digitalized. It was possible to produce the effect of digitalis without producing toxic symptoms in the majority of cases. A case of active rheumatic carditis with necropsy observations is reported. The patient reacted to digitalis three times in the presence of active carditis. On the basis of these observations the authors conclude that digitalis is of value in the treatment of children with heart failure. It is effective in doses comparable to those required by adults (0.15 cat units per pound of body weight), without necessarily producing intoxication. It is effective in the presence of active infection of the heart.

Tubercle Bacilli in Children with Erythema Nodosum.—According to Wallgren, children with erythema nodosum who give positive tuberculin reactions often excrete tubercle bacilli. This proves that the enlarged hilar shadows in the positive cases are of tuberculous etiology and that the children really are suffering from tuberculosis; this ought to be regarded as an argument in favor of the tuberculous nature of the erythema. Moreover, children with erythema nodosum are often spreaders of infection, and other children ought to be protected from contamination. Children with erythema nodosum must not go

to school for a certain length of time after the disease has developed, and if they are admitted to a hospital they should be isolated.

Archives of Surgery, Chicago

22: 691-874 (May) 1931

*Intraperitoneal Pressure. R. H. Overholt, Philadelphia.—p. 691.
Dimensions and Growth of Palate in Normal Infant and in Infant with Gross Maldevelopment of Upper Lip and Palate. W. T. Peyton, Minneapolis.—p. 704.
Histologic Studies of Brain in Cases of Fatal Injury to Head. C. W. Rand, Los Angeles.—p. 738.
*Periosteum: Living Bone Suture. G. W. Leadbetter, Washington, D. C. —p. 784.
*One-Stage Combined Resection of Rectum. W. Bartlett and W. Bartlett, Jr., St. Louis.—p. 786.
*Sarcoma of Esophagus. H. J. Dvorak, Minneapolis.—p. 794.
*Gallbladder Function. I. S. Ravdin and J. L. Morrison, Philadelphia. —p. 810.
*Nerve Pathways in Vomiting of Peritonitis. F. E. Walton, R. M. Moore and E. A. Graham, St. Louis.—p. 829.
*Pancreatic Cysts: Forty-Seven Cases. E. S. Judd, H. Mattson and H. R. Mahorner, Rochester, Minn.—p. 838.
*Undescended Testis: Principles and Methods of Treatment. H. Cabot and R. M. Nesbit, Ann Arbor, Mich.—p. 850.
Forty-Fourth Report of Progress in Orthopedic Surgery. P. D. Wilson, L. T. Brown, M. N. Smith-Petersen and J. G. Kuhns, Boston; R. K. Ghormley, Rochester, Minn.; M. S. Danforth, Providence, R. I.; G. Perkins, London, England; A. van Dessel, Louvain, Belgium, and C. H. Bucholz, Halle, Germany.—p. 857.

Intraperitoneal Pressure.—From experiments on dogs, Overholt concludes that the pressure within the peritoneal cavity is extremely variable. The pressure is greatest in the most dependent portions and lowest in the uppermost portions. The abdomen must be considered as an air-tight space so that, without outside communication, shifts in the position of the contained viscera effect a variation of the pressure in the upper portions of the peritoneal cavity. This decrease in pressure is sufficient to maintain a value below atmospheric pressure in the upper part of the abdomen with the animal in the horizontal or the erect position. In addition to the hydrostatic factor of the movable viscera, the alteration in the size of the abdomen incident to the phases of respiration is the second most important factor in the consideration of intraperitoneal pressure. In contradistinction to the reports of numerous other investigators, the author was unable to observe an increase in pressure during inspiration with the animal breathing quietly in any position. On the contrary, he found that the intraperitoneal pressure was lessened during inspiration and attained its greatest value during expiration. He concludes from this that the excursion of the costal arches and the increased distensibility (relaxation of the muscles) which occurs during inspiration more than compensates for the descent of the diaphragm. Since the subatmospheric pressure in the upper part of the abdomen is dependent on a sagging or "giving way" of the flexible walls below, it seems plausible that the relaxation of the abdominal muscles during inspiration is an important factor in the inspiratory decrease of pressure in the upper part of the abdomen. The fact that the pressure within the peritoneal cavity decreases simultaneously with the decrease in intrapleural pressure (during inspiration) suggests the close relationship between abdominal activity and respiration. It also suggests the possibility of interference with pressure variations above the diaphragm by the opening of the sealed cavity below.

Periosteum Sutures.—According to Leadbetter, autogenous periosteum has a definite tensile strength which does not vary when it is brought into contact with free body fluids. It is easily obtained from the broad, anterior surface of the tibia. If care is taken in the removal of the periosteum to elevate the small particles of the outer layer of the cortex, it is definitely osteogenic when placed in contact with cortical bone. Periosteum proliferates best when the grafted bone is thoroughly immobilized. Its proliferation in immobilized bone is rapid and early. It does not interfere with the circulation in the fragmented ends but rather increases the circulation of this region, thereby offering an aid to the formation of late callus. The use of the periosteal suture allows mobilization of the fractured extremity at an early date.

Resection of Rectum.—The Bartletts describe a method of one-stage combined resection of the rectum in which the usual procedure is completely reversed. By liberating the rectum and anus and bringing them, enclosed in a rubber bag, out of the abdominal wound to be used as upward traction, the most difficult part of the operation, deep pelvic dissection, is greatly simplified, since the mesosigmoid is thrown into relief and put on the stretch. It is much easier to work from the depths toward oneself than in the opposite direction. Higher division of the sigmoid may be carried out, and the superior hemorrhoidal is cut at a safe point. The posterior attack is shortened, there are no drains or tubes anywhere and there is no risk of a "blow-out" below the peritoneal closure. One may perform a preliminary colostomy for exploration, for relief from obstruction, for washing out the bowel and to enable one to leave the clamp on the intestine indefinitely after resection. With the fecal fistula made in the right upper quadrant, one can perform an adequate exploration and at a subsequent operation work in an abdominal wall and pelvis undisturbed by previous recent manipulation.

Sarcoma of Esophagus.—Dvorak states that only about thirty unquestioned cases of sarcoma of the esophagus have been reported. Though a disease of persons of advanced years, it occurs more frequently in the young than does carcinoma. It occurs most frequently in the lower third of the esophagus; carcinoma appears in the middle third. There are two chief types of sarcoma: the polypoid, which contains spindle cells, is relatively benign and rarely metastasizes, and the diffuse infiltrating type, which contains round cells and early gives rise to distant metastases. The tumor in a case reported by the author was a polypoid rhabdomyosarcoma and contained muscle cells of the striated type, spindle cells, giant cells, round cells and fibrous connective tissue. Unlike carcinoma, pain in sarcoma is often early and severe. Marked emaciation may develop long before appreciable stenosis. Dysphagia is often not the earliest symptom, but rather vague sensations of pressure and constriction. The condition is usually wrongly diagnosed. Most of the reported cases were correctly diagnosed only at necropsy. Diagnosis is certain only after biopsy and microscopic examination. Exact microscopic diagnosis is a valuable aid in determining operability. Sarcoma of the cervical esophagus has been resected successfully; sarcoma of the thoracic esophagus never has. The tumor in the case reported was refractive to 1,050 millicurie hours of radium. High voltage roentgen therapy appeared to arrest the process for from one and a half to two years.

Gallbladder Function.—Ravdin and Morrison present data which show that, under the conditions of the experiment (isolation), the gallbladder of the dog, guinea-pig and monkey shows rhythmic contractions and responds to stimulation by drugs. Certain constituents of the bile were not found in the lymphatics or blood vessels draining the gallbladder. Contractions of the human gallbladder were observed in a patient whose respiration was temporarily checked. From these experiments the authors conclude that although certain constituents of the bile leave the gallbladder by the lymphatics or blood vessels, concentrated bile leaves the gallbladder by the cystic duct as a result of contraction of the gallbladder.

Nerve Pathways in Vomiting of Peritonitis.—Walton and collaborators report experiments which show that the vomiting of peritonitis is the result of the stimulation of afferent nerve endings located in the peritoneum. The emetic impulse thus initiated passes to the medullary center by way of sensory nerve fibers which are included in both the vagal and sympathetic trunks. Section of these trunks prevents the occurrence of vomiting in peritonitis, although phrenic and other cerebrospinal nerve paths are left undisturbed. Since by sympathectomy alone or by vagotomy alone vomiting in peritonitis is not abolished, the afferent emetic impulse evidently traverses either pathway with equal facility.

Pancreatic Cysts.—Judd and his associates present a clinical analysis of forty-seven cases of cyst of the pancreas in which operation was done at the Mayo Clinic in the past ten years. The tumor was felt above the umbilicus in more than 95 per cent of cases. Cholecystic disease was present in more than 34 per cent. More than 85 per cent of the patients in whom only cyst of the pancreas was found complained of pain. Nine of eleven cysts noted as being mobile were found to originate in the tail of the gland. With careful selection of

cases for extirpation there was little difference as to risk and ultimate result between extirpation of the cyst and drainage.

Undescended Testis.—After they have brought an undescended testis down to the scrotum by surgical intervention, Cabot and Nesbit pass a long catgut suture with a straight needle at each end through the remains of the gubernaculum at its lowest point and tie it so that the two ends can be used for traction on the testis. The needles are then introduced into the scrotum and pushed out through the skin at the lowest point, about 0.5 cm. apart. With the sutures so placed, the testis is drawn well down into the scrotum. The sutures are then attached to a wire frame and rubber band so as to produce constant gentle downward traction on the testis. The inguinal incisions are next closed by any method that will give greatest length to the cord. The traction thus applied is left on for about twelve days, being adjusted occasionally during that period so as to remain constant. It has been found in many cases in which the testis can be brought down only to just outside the external ring at operation that after a few days of such elastic traction the testis descends well down into the scrotum.

Association of American M. Colleges Journal, Chicago

6: 129-192 (May) 1931

Study of Several "Experiments" in Medical Education. G. C. Robinson, New York.—p. 129.
Correlation Clinic in Freshman and Sophomore Years. W. A. O'Brien, Minneapolis.—p. 143.
Take Them Earlier and Keep Them Longer. W. D. Reid, Boston.—p. 149.

Florida Medical Association Journal, Jacksonville

17: 453-504 (April) 1931

Enteroliths of Small Intestine. G. H. Edwards, Orlando.—p. 463.
Value of Actinotherapy and Heliotherapy. L. L. Andrews, Orlando.—p. 466.
Incised Wound of Cornea. P. M. Lewis, Orlando.—p. 468.
Arthritis, with Especial Reference to Cause. T. M. Rivers, Kissimmee.—p. 469.

Journal of Clinical Investigation, Baltimore

10: 1-219 (April 20) 1931

Blood Electrolyte Studies During Histamine Shock in Dogs. D. W. Atchley, D. W. Richards, Jr., and Ethel M. Benedict, New York.—p. 1.
*Studies on Gallbladder Function: Absorption of Sodium Tetraiodophenolphthalein from Gallbladder. C. G. Johnston, Philadelphia.—p. 9.
Responses to Injection of Epinephrine in Hepatic Disease. R. F. Loeb, Esther B. Reeves and H. P. Glasier, New York.—p. 19.
*Spread of Rheumatic Fever Through Families. J. R. Paul and R. Salinger, New Haven, Conn.—p. 33.
*Age Susceptibility to Familial Infection in Rheumatic Fever. J. R. Paul, New Haven, Conn.—p. 53.
Pathologic Physiology of Pellagra: Tabulated Clinical and Physiologic Data. R. H. Turner, New Orleans.—p. 61.
Id. Serum Albumin and Globulin. R. H. Turner, New Orleans.—p. 71.
Id. Serum Calcium and Phosphorus, with Especial Reference to Nervous Symptoms. R. H. Turner, New Orleans.—p. 87.
Id. Serum Electrolytes and Acid-Base Equilibrium. R. H. Turner, New Orleans.—p. 99.
Id. Circulating Blood Volume. R. H. Turner, New Orleans.—p. 111.
*Skin Reactions of Patients and Normal Individuals to Protein Extracts of Streptococci. C. L. Derick and M. N. Fulton, Boston.—p. 121.
Studies in Congestive Heart Failure: Effect of Digitalis on Potassium Content of Cardiac Muscle of Dogs. J. A. Calhoun and T. R. Harrison, Nashville, Tenn.—p. 139.
*Heart Rate of Boys During and After Exhausting Exercise. E. P. Boas.—p. 145.
High Nitrogen Diets and Renal Injury: Dependence of Injury on Nature of Nitrogenous Substance. L. H. Newburgh and Margaret W. Johnston, Ann Arbor, Mich.—p. 153.
Studies of Calcium and Phosphorus Metabolism: Influence of Thyroid Gland and Parathyroid Hormone on Total Acid-Base Metabolism. F. Albright, W. Bauer and J. C. Aub, Boston.—p. 187.

Absorption of Tetiothalein Sodium from Gallbladder.—In experiments on dogs, Johnston demonstrated that potassium iodide is rapidly absorbed from the gallbladder. Tetiothalein sodium is absorbed more slowly than potassium iodide. The rate of absorption of tetiothalein sodium is so slow that it does not seem possible for absorption to explain the rapid changes occurring in clinical cholecystography. The author did not obtain any evidence that a fat meal increases the rate of absorption of the dye.

Spead of Rheumatic Fever Through Families.—According to Paul and Salinger the spread of rheumatic fever through families strongly suggests that one is dealing with an infection, in which the important rôle of environment, and of an hereditary predisposition to the disease, is as yet undetermined. The sudden appearance of what seem to be both primary and secondary outbursts of rheumatic activity in certain individuals has been frequently accompanied by the appearance of recognizable forms of the disease in other members of the family group, and not infrequently by the simultaneous appearance of nonspecific types of illness such as bronchitis, bronchopneumonia, skin rashes, and rheumatoid arthritis. Not only do several cases seem to be initiated simultaneously, but periods of recurrent activity of the disease seem to sweep through a family in synchronous waves, during which time new cases may also appear.

Age Susceptibility in Rheumatic Fever.—Paul found that in a selected population representing members of families, in which two or more individuals had suffered from evidences of rheumatic fever, the disease spread particularly to the younger members of the family, and was largely distributed throughout the age group from 5 to 12, reaching its peak at about the age of 7. Among the children between 5 and 12, who apparently had not previously suffered from any manifestations of the disease, rheumatic fever was acquired in association with familial exposure, at the rate of 25 to 35 per cent. Among children between 5 and 12 years of age who had already survived an initial attack, recurrences were noted in association with familial exposure at the rate of 35 to 60 per cent, decreasing as age increased, but representing a markedly enhanced susceptibility during adolescence.

Skin Reactions to Extracts of Streptococci.—Intracutaneous tests, made with the purified nucleoprotein fraction of a hemolytic and green streptococcus were studied by Derick and Fulton in a group of 670 persons, most of them patients in the medical wards of a general hospital. The antigens used were purified till their nitrogen content was constant. A similar protein from bakers' yeast was used as a control in part of the work. The hemolytic streptococcus nucleoprotein almost uniformly induced stronger reactions than did the green streptococcus antigen. In persons over 15 years, age plays no part in determining the presence or absence of sensitiveness to these antigens. In children under 15 years of age there is with increase in age a gradually increasing proportion of positive to negative reactors. This proportion is influenced markedly by the presence or absence in children of rheumatic infection, the percentage of positive reactors among the rheumatic group outnumbering that in the nonrheumatic group by a wide margin. Since positive reactions may be obtained in a great variety of diseases, the test has no specific diagnostic value. The disease from which one suffers at the time of testing appears to bear some relationship to the state of sensitiveness.

Heart Rate After Exercise.—Boas states that slowing of the heart rate after exercise is so rapid that a true picture of the effect of exercise on the curve of heart rate can be gained only by recording the rate continuously during exercise. Such a study, carried out with the cardiotachometer, on twenty-seven boys subjected to exhausting exercise showed an average maximum rate during exercise of 190. The highest recorded rate was 204. Although the major drop in rate is completed within one minute after exercise, in most cases, the rate is still considerably above the resting level at the end of an hour.

Michigan State M. Soc. Journal, Grand Rapids

30: 319-408 (May) 1931

Observations on Acute Appendicitis: Factors Influencing Mortality. F. A. Coller and C. C. McRae, Ann Arbor.—p. 319.
Roentgen Findings as Evidence in Medicolegal Cases. W. A. Evans, Detroit.—p. 329.
Women in Medicine. Susanne Sanderson, Detroit.—p. 339.
Prevention and Treatment of Whooping Cough. J. C. S. Battley, Port Huron.—p. 344.
Chronic Nephritis in Children. M. Cooperstock, Ann Arbor.—p. 350.
Subarachnoid Hemorrhage Occurring in Syphilis. F. G. Lindemulder, Ann Arbor.—p. 354.
Gallbladder Diseases. Diagnosis and Indications for Operation. R. D. McClure, Detroit.—p. 356.
Skin Cancer and Its Prophylaxis. R. A. C. Wollenberg, Detroit.—p. 360.
Treatment of Pollen Asthma, Hay-Fever and Pollen Dermatitis Based on a Pollen Survey of Detroit. G. L. Waldbott and W. C. Steere, Detroit.—p. 367.
Report of Case of Tuberculoma of Cerebellum. F. F. Hardy, Grand Rapids.—p. 372.

Minnesota Medicine, St. Paul

14: 389-497 (May) 1931

Results in Perineal Prostatectomy: Analysis of 323 Consecutive Cases. E. Davis, Omaha.—p. 389.
Acute Poliomyelitis. E. T. Evans, Minneapolis.—p. 396.
Impetigo or Pemphigus Neonatorum, with Especial Reference to Etiology and Prophylaxis. R. A. Murray, Duluth.—p. 399.
Prognosis in Heart Disease. F. A. Willius, Rochester.—p. 405.
Functional Disorders of Bowel. R. S. Ylvisaker, Fergus Falls.—p. 411.
Benign Polypi of Colon and Their Relation to Cancer. H. E. Hulbert, St. Paul.—p. 416.
Diagnosis and Treatment of Pilonidal Sinus. J. K. Anderson, Minneapolis.—p. 421.
Detection and Treatment of Respiratory Infections Among University Students. E. Hanson and J. A. Myers, Minneapolis.—p. 425.
Organized Care of Patients with Acute Rheumatic Endocarditis. M. J. Shapiro, Minneapolis.—p. 428.
Tuberculosis, a Public Health Problem. H. A. Burns, Ah-Gwah-Ching.—p. 431.

Missouri State M. Assn. Journal, St. Louis

28: 191-256 (May) 1931

Treatment of Hay-Fever. C. H. Eyermann, St. Louis.—p. 191.
Acute Obstruction of Small Intestine: Early Diagnosis and Treatment. J. E. Stowers, Kansas City.—p. 194.
Undulant Fever: Two Cases. C. A. W. Zimmermann, Cape Girardeau.—p. 201.
Brucella Abortus Infection in Man (Undulant Fever). J. W. Love, Springfield.—p. 210.
Brucellosis: Clinical Manifestations in Animals and in Man. G. D. Callaway, Springfield.—p. 212.
Primary Carcinoma and Carcinoid of Appendix. J. G. Montgomery and E. T. Johnson, Kansas City.—p. 215.
Acute Phosphorus Poisoning: Case with Recovery. B. P. Wentker and B. L. Neubeiser, St. Charles.—p. 220.
Diabetes Mellitus: Cases. R. C. Kitchell, Bismarck.—p. 221.
Spinal Anesthesia in Acute Abdominal Conditions. L. R. Ellers, Louisville, Ky.—p. 224.

Nebraska State Medical Journal, Norfolk

16: 169-212 (May) 1931

Neurolysis of Facial Nerve After Ten Years' Inclusion Within Scar Tissue: Operation, with Returning Function. W. A. Bunten, Cheyenne, Wyo.—p. 169.
Breech Labor. E. M. Hansen, Lincoln.—p. 174.
Case Studies in Goiter: VI. Acute Hyperplastic Goiter. A. Brown, Omaha.—p. 177.
The Gallbladder. B. R. McGrath, Grand Island.—p. 180.
Diagnosis and Treatment of Tuberculous Empyema. C. Emerson, Lincoln.—p. 184.
Frontal Lobe Lesions. W. D. Abbott, Des Moines, Iowa.—p. 188.
Epithelioma of Cornea in Both Eyes. D. T. Quigley, Omaha.—p. 192.
Pioneer Doctors of Brown County, Nebraska. G. O. Remy, Ainsworth.—p. 193.

New England Journal of Medicine, Boston

204: 845-898 (April 23) 1931

*Treatment of Peripheral Vascular Lesions. R. H. Smithwick, Boston.—p. 845.
*Experiences with Sympathetic Ganglionectomy in Peripheral Circulatory Disease. J. G. White, Boston.—p. 852.
General Management of Circulatory Disorders of Extremities. A. W. Allen, Boston.—p. 859.
Iliac Embolism with Acute Cardiac Decompensation. C. C. Lund, Boston.—p. 863.
Mothers and Their Babies Cared for at Boston City Hospital in 1929. Hazel W. Bridges, Brighton.—p. 869.

Treatment of Peripheral Vascular Lesions.—According to Smithwick, alcohol injection of peripheral sensory nerves has become the most valuable aid in treating painful ulcerated lesions in the presence of advanced obliterative vascular disease of the lower extremity. By eliminating pain, one may apply proper dressings. This reduces infection to a minimum and decreases the danger of thrombosis of the capillary circulation. Secondarily, it results in an increased circulation to the part by inhibition of the sympathetic vasoconstrictor influence, which is marked in many cases. This causes a local rise in surface temperature. In many advanced cases in which the patients would ordinarily be subjected to an immediate major amputation, they can be restored to useful activity in a few months' time. The author feels that this procedure should always be tried first. It should rarely be necessary to amputate for pain. Extensive gangrene, or sepsis which endangers the life of the patient are the only two indications for a major amputation.

Sympathetic Ganglionectomy in Peripheral Circulatory Disease.—White gives a brief summary of thirty-five sympathetic ganglionectomies for circulatory disease. It is obvious that it is the specific cure for the early case of Raynaud's disease; for the advanced case in which there has been prolonged ulceration and fibrosis, operation will arrest the progress of the disease, although permanent trophic changes may have taken place which cannot clear up even after the elimination of all vasomotor spasm. In the second group of cases which show a constant state of vasomotor hyperactivity, a restoration of normal circulation usually prevents the advance or causes a regression in the crippling atrophic changes which often accompany this condition. Beneficial results are reported in patients with scleroderma and traumatic arthritis, and also in the improvement of the accompanying pain in the extremities. Poor circulation and ulceration of the feet secondary to paralysis from spinal cord lesions may also be benefited by ganglionectomy, but the results have not been so uniformly successful as in the preceding groups. The author emphasizes the importance of a most careful selection of patients for operation. Operation should not be performed on patients in whom there is not definite increase of peripheral circulation following the intravenous injection of typhoid vaccine or after diagnostic procaine hydrochloride block. It is not justifiable to undertake such a radical procedure on poor operative risks, nor should it be attempted on patients with infected ulcerations, until it has been proved that these lesions are free from virulent streptococci. With these criteria in mind and an increase in clinical experience, there should be but a few failures and the minimum operative risk in the resection of the vasomotor pathways to the extremities.

New Orleans Medical and Surgical Journal

83: 753-842 (May) 1931

Fractures. C. L. Scudder, Boston.—p. 753.
Prevention and Management of Birth Canal Injuries and Anatomic Repair of Old Lacerations of Perineum. T. B. Sellers and J. T. Sanders, New Orleans.—p. 757.
Juvenile Diabetes. A. A. Herold, Shreveport, La.—p. 766.
Office Method of Treating Rectal Fistulae Without Cutting the Sphincter. J. W. Warren, New Orleans.—p. 771.
Opaque Clysma in Examination of Colon. L. J. Williams, Baton Rouge, La.—p. 778.
Chronic Duodenal Stasis. H. G. F. Edwards, Shreveport, La.—p. 781.
Ventriculography and Encephalography in Diagnosis and Treatment of Lesions of Brain. E. R. Carpenter, Dallas, Texas.—p. 787.
Plea for Better Cooperation Between Surgeons and Pathologists. W. P. Butler, Shreveport, La.—p. 792.
Plea for Cooperation of Orleans Parish Medical Society with New Orleans Health Department. W. H. Robin, New Orleans.—p. 794.

Ohio State Medical Journal, Columbus

27: 345-432 (May) 1931

Relative Value of Irradiation and Operation in Cure of Uterine Cancer. J. O. Polak, Brooklyn.—p. 363.
Hereditary Deforming Chondrodysplasia or Multiple Exostoses: Six Cases in One Family. G. T. Harding III and H. H. Fockler, Columbus.—p. 366.
Bacillus Coli Meningitis: Case. A. R. Vonderahe and F. X. Baurichter, Cincinnati.—p. 370.
Consideration of Craniocerebral Injuries. H. E. LeFever, Columbus.—p. 371.

Oklahoma State Medical Assn. Journal, Muskogee

24: 141-176 (May) 1931

Infantile Tetany with Case Report of Gastric Tetany Following Operation for Pyloric Stenosis. W. M. Taylor, Oklahoma City.—p. 141.
Pyloric Stenosis in Infancy. C. H. Hall, Oklahoma City.—p. 143.
Symptomatology of Asthma in Children. R. M. Balyeat and H. J. Rinkel, Oklahoma City.—p. 145.
Endocrine Clinic. H. Turner, Oklahoma City.—p. 148.
Causes of Respiratory Obstruction in Infants and Children. L. C. McHenry, Oklahoma City.—p. 155.
Chronic Discharging Ears as Menace in Children. T. G. Wails, Oklahoma City.—p. 157.
The Crying Infant. C. M. Pounders, Oklahoma City.—p. 158.
Thyroid and Menopause. Leila E. Andrews, Oklahoma City.—p. 163.
Toxemias of Pregnancy — Symptoms and Treatment. U. E. Nickell, Davenport.—p. 161.
Reconstruction of Burned Hand. C. von Wedel, Oklahoma City.—p. 164.

Public Health Reports, Washington, D. C.

46: 957-1011 (April 24) 1931

Significance of Positive Wassermann and Kahn Reactions in Leprosy. L. F. Badger.—p. 957.
County Health Unit of Yesterday and Today. F. T. Foard.—p. 970.

46: 1013-1078 (May 1) 1931

Fumigants. C. L. Williams.—p. 1013.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

6: 75-135 (April) 1931

*Metabolism Studies in Celiac Disease. Olive Macrae and N. Morris. —p. 75.
*Method of Study of Intracranial Hemorrhage in the New-Born Infant. F. M. B. Allen and H. I. McClure.—p. 97.
Two Cases of Subacute Hepatic Necrosis. Hazel H. C. Gregory.—p. 101.
Case of Congenital Hypertrophic Pyloric Stenosis. W. Gaisford.—p. 111.
Postanginal Sepsis (Sepsis of Oronasopharyngeal Origin). M. S. Reuben. —p. 115.
Surgical Anatomy of Rammstedt's Operation. D. Browne.—p. 129.

Metabolism Studies in Celiac Disease.—According to Macrae and Morris, the results obtained in metabolic investigations on celiac disease may be at present best explained on the following assumptions: The defect is one of absorption and is due to change or changes in the physicochemical constitution of the intestinal contents. These changes probably include a shift of reaction to the alkaline side and a deficiency in the bile salts. The poor retention of minerals is probably the result of the alkaline reaction of the contents of the intestine together with a difficulty in vitamin D. Improvement in the retention of minerals may occur without synchronous improvement in fat absorption.

Intracranial Hemorrhage in the New-Born Infant.—Allen and McClure describe a method of study of the occurrence, site, size and number of hemorrhages in cases of intracranial hemorrhage by means of the injection of a contrast medium into the carotid artery and subsequent stereoscopic roentgen examination of the brain. The advantages of this method are that permission to perform a necropsy is unnecessary as there is practically no mutilation of the body. The technic is simple and the medium injected is inexpensive, gives excellent definition and does not tend to gravitate. Accurate localization by stereoscopic roentgenogram is possible and a permanent pictorial record can be kept.

British Medical Journal, London

1: 653-692 (April 18) 1931

Conservative Gynecologic Surgery. W. B. Bell.—p. 653.
*Activated (Irradiated) Fluorescein in Treatment of Cancer. S. M. Copeman.—p. 658.
*Types of Pneumococci in Relation to Disease. J. T. Smeall.—p. 661.
Black Hairy Tongue. H. H. Gleave and S. Hallam.—p. 663.
*Case of "Black Tongue." H. M. Wharry.—p. 664.
Four Biliary Anomalies: Plea for Cholecystogastrostomy. E. W. M. H. Phillips, D. Isaac and J. MacDonald.—p. 665.
*Unusual Distribution and Morphologic Modification of Comedo. J. G. Tomkinson.—p. 666.

Activated Fluorescein in Treatment of Cancer.—Copeman's method of treatment of cancer, initiated about two years ago, has continued to afford satisfactory results in certain cases of cancer, some of so advanced a character that they had been regarded by the surgeons in charge as definitely inoperable. It consists of the use of a slightly alkaline solution of the sodium salt of fluorescein sprayed or painted widely over the surface of the growth and followed by the application of radium or a dosage of roentgen rays of moderate penetration. In some instances this superficial use of fluorescein may suffice for the required purpose, but when the growths are somewhat more deeply seated or when there is reason to suspect dissemination of the disease, the fluorescein is also given orally or intravenously. Owing to the extremely low toxicity of the fluorescein salt considerable quantities may be administered in one or other of these ways, an ordinary dose given by the mouth consisting of two capsules of 0.5 Gm. each. The object of giving the fluorescein internally is to bring under its influence, on irradiation, outlying cells that may have become affected, or an organ such as the liver, which may be suspected of harboring secondary deposits, even though no clinical evidence of the fact may be apparent. More recent experience has, indeed, afforded reason for the hope that by giving the fluorescein internally as well as by local application to the skin, together with appropriate distribution of the subsequent irradiation, this technic may prove successful in preventing recurrence, not only locally but generally. For intravenous administration, 20 cc. of a sterilized 5 per cent solution of sodium fluorescein should be slowly injected. With this improved technic the use of activated fluorescein has now been found capable of affording excellent results in the treatment of certain cases of cancer, especially cancer of the breast, whether primary or when recurrent after operation or other treatment, as well as in malignant growths of a comparatively superficial character in other situations, including rodent ulcers. Successful results have also been obtained in cases that had previously failed to respond to irradiation methods alone, or had been considered to be inoperable. Of cases of breast cancer, believed to be still in the "operable" stage, thus far only three have become available for treatment, which, in all three cases, has sufficed to bring about complete disappearance of the growth. None of these, as yet, have shown signs of recurrence, although in one instance more than three years has now elapsed since treatment with activated fluorescein was undertaken.

Types of Pneumococci in Relation to Disease.—During the past two years Smeall has typed over 150 strains of pneumococcus, isolated from lesions in different parts of the body. He states that the pneumococcus most commonly found in the eye, nose and accessory sinuses belongs to group IV. In acute otitis media and mastoiditis, type III strains and group IV organisms were found in about equal numbers. The type-specific strains showed a greater tendency to infect the meninges. Attention is drawn to the important part that the streptococcus plays in acute middle-ear and mastoid disease. *Streptococcus pyogenes* was found in the majority of cases. The most prevalent type of pneumococcus in cases of lobar pneumonia was found to be type II. In cases of empyema due to pneumococci, the type I strain was present in a large percentage.

Case of "Black Tongue."—Wharry reports a case of black tongue which shows that this condition may spread over the posterior third of the tongue and is not confined to localized patches anterior to the circumvallate papillae. The dark color is caused by the fungus *Cryptococcus linguae-pilosae* and not necessarily by any changes in the papillae of the tongue itself. The disease may be of long standing and yet not cause hypertrophy of the papillae, either filiform or circumvallate. The hypertrophy of the filiform papillae, so often noticed before, is probaly due to continuous irritation of the tongue at one particular spot where the fungus has taken a firm hold. The growth of the fungus is the primary condition and may exist without lingual hypertrophy.

Unusual Distribution of Comedo.—Tomkinson reports the case of a man who had been accustomed to work in a hot atmosphere and with a great deal of oil. He had perspired freely, and blackheads had developed, especially round the lower eyelids. The blackheads had been removed from time to time. Later, blackheads had appeared on the upper lids; some of them had slowly increased in size, gradually become flattened and pale yellow, but had caused no difficulty in the closing or opening of the eyes and had never been treated. On inspection the left upper eyelid, mainly anteriorly, showed flat, approximately circular plaques, raised slightly above the skin level, pale yellow with a more or less central black spot, and resistant to the touch. They were distributed mainly anteriorly, and some tended to project beyond the palpebral margin. The largest was about 0.5 cm. in diameter. The right upper eyelid was affected but did not exhibit the same degree of modification. Comedones were present on both lower lids.

Lancet, London

1: 843-896 (April 18) 1931

*Quinine Therapy in Malaria. P. Manson-Bahr.—p. 843.
*Acute Disseminated Encephalomyelitis: Its Sequelae and Its Relationship to Disseminated Sclerosis. D. McAlpine.—p. 846.
*Incidence and Source of Brucella Abortus Infection in Man. R. Cruickshank and W. J. Barbour.—p. 852.
*Maximal Reticulocyte Responses from Intravenous Injection of a Liver Extract. W. B. Castle and F. H. L. Taylor.—p. 857.
Postoperative Vomiting. Bessie E. Cook.—p. 860.

Quinine Therapy in Malaria.—According to Manson-Bahr there have been periods, as, for instance, during the war, when heroic and massive doses of quinine were given with the idea of extirpating in toto the plasmodium from the human body, while neglecting, or even disregarding, its subsequent

deleterious effects on the organism as a whole. After the armistice saner ideas again prevailed, since it has been realized that the main objects of annihilation have not been obtained by heroic dosage, and since it is held by some that massive quinine therapy not only does not prevent relapses but may actually predispose to them. It is no longer regarded as dangerous to administer quinine when there is a degree of pyrexia, but the drug exerts its maximum effect if given when the acute paroxysm is declining and when the patient is beginning to perspire, for at that moment the parasites have sporulated and the merozoites are free in the blood plasma and in a condition in which they are most susceptible to the action of quinine. The author believes that plasmochin is a useful adjuvant to quinine treatment and in many circumstances an efficient substitute. It is easy to take and is comparatively tasteless. Many people can tolerate it who are intolerant of quinine in ordinary therapeutic doses. It is more efficacious in controlling benign tertian malaria than is pure quinine; it frequently cures an infection that appears resistant to pure quinine. It banishes the crescents from the blood in subtertian malaria. In appropriate doses it is readily taken and readily absorbed by children and it is readily borne by pregnant women, in whom it controls the fever while it does not predispose to abortion, as does pure quinine. He has had several cases of intractable malaria in pregnant women who have gone to full term on plasmochin therapy without any further attacks.

Acute Disseminated Encephalomyelitis.—McAlpine states that within the last few years a form of acute disseminated encephalomyelitis has occurred, in 1928 in epidemic form, in England and other countries, either spontaneously or following vaccination or infectious fevers. On clinical and pathologic grounds it is believed that these cases, whether occurring spontaneously or otherwise, may be due to the same virus. The final proof of this, however, can be provided only by bacteriology. The mortality is low. Except in rare instances in which relapses may occur during the first few months the acute phase generally does not exceed two or three weeks. Sequelae may result and may be extremely varied in their clinical aspects. In such cases the recognition of the original cause, unless the case is seen in the acute stages, may be a matter of great difficulty. A retrospective diagnosis in such a case may be possible if a careful history is obtained of the initial symptoms, particularly as to the presence of pain. Disseminated encephalomyelitis, both in its acute phase and in its sequelae, may closely resemble disseminated sclerosis. It is suggested that a different virus is responsible for these two diseases, and that in acute disseminated encephalomyelitis immunity is usually conferred on the person by the first attack, whereby relapses are prevented.

Brucella Abortus Infection in Man.—Cruickshank and Barbour found that the incidence of *Brucella abortus* infection as judged by the agglutination test was so low (less than 0.5 per cent) in a sample of a general hospital population that the probability of its being a common infection seems remote. Contact with infected cattle—e. g., by dairymen, farmers, and veterinary surgeons—may result in the formation in the blood of agglutinins to *Brucella abortus* without necessarily producing infection. On the other hand, drinking infected milk does not seem to result in agglutinin formation to any extent. Only a proportion of infected cows (22 per cent in the authors' series) excrete *Brucella abortus* in the milk. The excretion may be intermittent and the organism is present both in the cream and in the milk sediment. Inoculation of a diary herd with living *Brucella abortus* vaccine, if not of curative value to infected cows, is not harmful to healthy animals and in the latter is probably a useful prophylactic measure. Guinea-pigs infected with *Brucella abortus* by milk inoculation may not show gross pathologic changes in the tissues, and the diagnosis of *Brucella abortus* infection in the guinea-pig rests primarily on the agglutination test.

Intravenous Injection of Liver Extract.—A readily prepared extract of liver (fraction G) hitherto administered by mouth has been found by Castle and Taylor suitable for intravenous injection and highly potent in pernicious anemia. Maximal reticulocyte responses were obtained from a single intravenous injection of the amount of extract derived from 100 Gm. of liver. One of the patients so treated had failed to respond satisfactorily to the previous oral administration of a similar extract derived from 3,000 Gm. of liver given within a period of ten days. The possible etiologic and therapeutic significance of these observations is discussed.

Annales de Médecine, Paris

29: 97-200 (Feb.) 1931

*Liver Insufficiency: Clinical Aspect. M. Labbé.—p. 97.
Amphogyric Sugar Test. N. Fiessinger and J. Dieryck.—p. 123.
Blood Physicochemistry in Kidney Diseases and Arterial Hypertension. E. Coelho, H. de Carvalho and J. Rocheta.—p. 156.

Liver Insufficiency: Clinical Aspect.—Labbé believes that if one follows the principles he advocates in investigating the underlying cause of many ailments the result will be of great value in the diagnosis as well as in the prognosis of the ailment. He enumerates conditions for which liver insufficiency is entirely or at least partially responsible. Among them are: (1) incurable dyspepsias; (2) rebellious constipations and prolonged diarrheas; (3) all kinds of headaches (cephalalgias), migraines, urticarias and eczemas; (4) idiosyncrasy (intolerance) to certain foods and drugs; (5) cyclic vomiting in infants; (6) hyperemesis gravidarum; (7) alcoholic psychosis (delirium) and others; (8) dementia praecox and mental confusion. The author recommends a new method for recognizing the functional disturbances of the liver in the diseased person during life and not only on postmortem examination. He bases these means on symptoms and signs which can be attributed only to liver insufficiency. He further refers to his investigations on glycosurias due to liver insufficiency, differentiating them from diabetic glycosurias. Spontaneous internal hemorrhages he believes in many instances are also due to hepatic insufficiency, although there might be no evident symptoms of any pathologic changes in the liver. He recognizes the following three forms of liver insufficiency: (1) forme larvée (the mild, masked form), (2) malignant form and (3) toxic form. The author concludes that liver functional disturbances with no evident symptoms and signs is in need of further investigation.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

57: 423-453 (March 28) 1931

Spontaneous Fracture of Carpal Scaphoid. C. Cornioley and L. Michon.—p. 424.
Pulmonary Complications in Gastric Resections: Twelve Cases. J. Duval.—p. 431.
Pneumotomy as Treatment for Pulmonary Abscess: Case. Barthélemy and Rousseau.—p. 435.
Surgical Infection Treated by Bacteriophagy: Four Cases. Barthélemy and Roque.—p. 437.
*Marked Traumas of Cervical Spine Producing Only Insignificant Disturbances: Three Cases. P. Fredet.—p. 440.
Goiter: Surgical Treatment: Twenty-Five Cases. M. Labbé.—p. 444.
Fracture of Calcaneus: Utilization of Vertical Bone Pegs: Case. J. Silhol.—p. 451.

Traumas of Cervical Spine Producing Insignificant Disturbances.—Fredet observed three cases of bony lesions of the cervical spine, which although apparently grave did not produce serious disturbances. His observations demonstrated once more that in all traumatic lesions of the spinal column it is absolutely necessary to avoid diagnostic errors by always taking two roentgenograms, one in the frontal and one in a sagittal plane.

Paris Médical

1: 261-292 (March 21) 1931

Malignant Tumors: Recent Researches on Serodiagnosis. J. Lavedan.—p. 261.
Id.: Treatment with Dyes. W. Nyka.—p. 272.
*Cholesterol in Cancer. A. H. Roffo.—p. 282.
*Lung Cancer of Industrial Origin. S. Doubrow.—p. 287.

Cholesterol in Cancer.—Roffo reviews the results of some of his experiments on skin cancer done in 1926 and emphasizes the fact that the richness of the precancerous tissues in cholesterol is also accompanied by cholesterolemia. It was also demonstrated by him at that time that a hyperlipoidic nutrition has some influence on the development of skin neoplasms. Concerning the present proportion of cancer morbidity in reference to its localization, one observes that the skin neoplasms are more frequently encountered than any others. In the author's 8,000 cancers observed, the preponderance of the cutaneous localization must attract some attention. In each 100 patients with cancer treated in the Cancer Institute of Buenos Aires, cases

of cancer of the skin and face amounted to 26.11 per cent, breast cancer to 16.35 per cent, cancer of the uterus to 11.84 per cent, and so on. The predisposition to cancer of the skin has to be attributed to one striking fact: to the frequency with which skin cancer develops on the face and the rarity with which one observes it on skin covered by clothes. In this direction the investigator by making numerous extracts (method of Grigaut, with the Libermann reaction) from the skin taken from the face (not covered) and skin from the abdomen (covered) determined the amount of cholesterol in each. The figures show clearly that there is much more cholesterol in the skin of the face than in that of the abdomen. The fact that cancer of the face is met more often in men than in women is of great significance. With the established fact that this phenomenon is produced exclusively in the skin exposed to the sun's rays and not in the skin covered by clothes, one concludes that the cutaneous hypercholesterolemia is due to the so-called positive heliotropism of the cholesterol. Most modern investigators support the author's opinion. In another large series of experiments with the skin of the forehead, cheek and abdomen of various men and women, the results obtained were as follows: In regions covered by clothes the proportion was in many instances two or three times less than in those exposed to sunlight. It varied also for different parts of the face; for example, the difference in skin cholesterol contents between the forehead and the nose was greater than between the skin of the forehead and the cheek (the nose is the part of the face most exposed to the rays). In his further experiments the author irradiated for a definite time one lot of white rats with sunlight and another with ultraviolet rays and, after obtaining a piece of skin from each group, determined the quantity of cholesterol. The author observed in skin treated in this way an augmentation of 23 per cent in rats irradiated for ten hours and of 100 per cent in those exposed to sunlight for twenty-eight days. Among the rats irradiated with ultraviolet rays for from five to 470 minutes the author also noted a marked augmentation of cholesterol in the irradiated skin. The further study of the intimate processes of this phenomenon makes the author recognize the so-called photo-activity of cholesterol in relation to cancer; i. e., the physicochemical relations of it to solar irradiation. The hypercholesterolemia of the most elevated and therefore most exposed part of the face (nose) gives the highest proportion of tumors. This is supported by the figures of the Buenos Aires Cancer Institute, where in 8,000 patients treated the frequency of cancer of the nose in each 100 cutaneous cases was 61.4 per cent, of the cheek 18 per cent, of the forehead 7.7 per cent, of the ear 7.9 per cent, and of the temporal region 4 per cent. The author thinks that light acts not only as an agent of fixation of certain ions in the organism as, for example, calcium, but, according to his experiments, also as a fixator of cholesterol. Of a similar character are some natural phenomena, as meteorological influences on certain biologic processes which as yet are not sufficiently explained. In the Negro race, in which skin pigmentation produces a protection against the absorption of sun rays, cutaneous cancer is extremely rare; this refers, of course, to those who live in the savage condition and in whom the distribution of cholesterol in the skin is homogeneous.

Lung Cancer of Industrial Origin.—Doubrow briefly reports observations made in Germany and Czechoslovakia on lung cancers of industrial origin. In Germany as well as in Czechoslovakia they are limited mostly to a few definite mining regions, in the former to the mines of Schneeberg (whence comes its synonym, "Schneeberg disease"). A similar survey in France does not reveal that the miners are affected by this disease. The average age of persons affected by such lung cancers is 55 years (37 and 69 years are the age limits). Clinically, cancer of Schneeberg does not differ much from other lung cancers. In 154 laborers examined at Schneeberg in the last three and one-half years there occurred 21 deaths from this type of cancer. In thirteen cases the clinical diagnosis was proved at necropsy. In the remaining eight cases, necropsy was not performed. In Czechoslovakia in the last two years necropsy was performed on eight of fifteen deceased miners of Joachimsthal. In all except two with tuberculous lesions it was shown that the cause of death was cancer of the lung of industrial origin. It is interesting to note that cancer (except lung cancer) was observed in 8.3 per cent of the mining region population and in 14 per cent of the miners. The etiology of this rare disease is still obscure, even though one takes into consideration the geographic as well as the geologic causes and more particularly the chemical composition of the minerals mined. The author quotes the German investigators as follows: If one attributes dust inhalation as the etiologic factor in the production of cancer of Schneeberg, one naturally has to explain why other categories of workers exposed to pneumonoconiosis do not present lung cancers with the same frequency but, on the contrary, succumb more often to tuberculosis.

Policlinico, Rome

38: 161-212 (April 1) 1931. Medical Section

*Diagnosis of Spinal Tumors in Radiculalgic Stage. T. Pontano.—p. 161.
*Aspecific Wassermann Reactions in Blood. G. Gelli.—p. 171.
Two Atypical Cases of Paraplegia with Apoplectiform Onset. G. Antonelli.—p. 182.
Clinicoradiologic Considerations on a Series of Cases of Gonorrheal Osteoarthritis. G. V. Brizio and T. Torreri.—p. 194.

Diagnosis of Spinal Tumors in Radiculalgic Stage.—Pontano, after a short survey of the semeiologic means available for the diagnosis of a primary spinal tumor, takes up the analysis of the diagnosis in the radiculalgic stage. A clinical case successfully diagnosed and brought to operation in this stage offers the opportunity for the identification of certain types of pain as of radiculalgic origin and for the evaluation of the aid that the clinician derives from an examination of the spinal fluid and from the iodized poppy-seed oil test when there is as yet no evidence of a radicular or medullary defect.

Aspecific Wassermann Reactions in Blood.—Gelli, after a cursory bibliographic review of the subject, discusses the peculiar observation of a four-plus Wassermann serodiagnosis in a girl, aged 11, with hepatic distomiasis, in whom there were no signs pointing to syphilis and in whom the reaction soon became negative when, following intensive treatment, the daily search for ova of *Distoma* proved negative.

38: 471-506 (April 6) 1931. Practical Section

Traumatic Pneumo-Encephalon: Case. G. Giordano.—p. 471.
*Inadequacy of Ziehl-Neelsen Method for Determination of Tubercle Bacilli in Urine. E. J. Pampana and M. Sabatucci.—p. 476.

Inadequacy of Ziehl-Neelsen Method for Determination of Tubercle Bacilli in Urine.—Pampana and Sabatucci conclude, in harmony with recent observations of other authors, that it would be extremely hazardous to assume the tuberculous nature of a urine on the mere basis of the presence of acid-fast or alcohol-resistant bacilli of a morphology similar to the tubercle bacillus, and that the practitioner must conduct such a search with great caution and with a profound sense of responsibility. The technic they propose (the modified Pappenheim method) enables the examiner to exclude immediately the tuberculous nature of many suspected materials.

Riforma Medica, Naples

47: 361-400 (March 9) 1931

Meningitis Due to "Micrococcus Tetragenus Tardissimus." A. M. Bonanno.—p. 363.
*Changes Resulting from Introduction of Foreign Bodies into Renal Pelvis. M. Cusani.—p. 365.
Rectal Anesthesia by Means of "Avertin." D. Soli.—p. 368.
Silica Content of Normal and of Tuberculous Lung. R. Piazza.—p. 369.

Changes Resulting from Introduction of Foreign Bodies into Renal Pelvis.—Cusani performed experiments with dogs by introducing smooth and rough foreign bodies into the renal pelvis by way of a longitudinal incision followed by suture, an operation performed by the extraperitoneal route. The foreign bodies were eliminated by the natural route or they remained free in the pelvis, or they became adherent to the walls of the pelvis, near the incision, surrounded by a ring of connective tissue. In any event, the changes brought about by the foreign body in the pelvis took the form of a reactive process of varying extent and degree.

47: 401-440 (March 16) 1931

*Early Diagnosis and Immunizing Treatment of Neoplasms. F. Figari.—p. 403.
Secretions of Pituitary Body. F. Heimann.—p. 407.
Electrical Knife in Gastro-Intestinal Surgery. G. Cavina.—p. 409.

Early Diagnosis and Immunizing Treatment of Neoplasms.—Figari describes his results from a long series of

researches carried out, in the Istituto Maragliano in Genoa, on malignant tumors, with especial reference to immunization, to early diagnosis and to the possible application to treatment of the observations made. After stating that the test of the existence of a state of immunization can be regarded as attained by the technic of the enzyme reaction of Sivori, Ribaudi and Menniti, he explains the method of applying the test for early diagnosis. He concludes that the results secured thus far justify a continuance of this line of research. *

47: 441-476 (March 23) 1931

*True Narcolepsy and Its Treatment. L. Benedek and E. von Thurzó. —p. 443.
Case of Kala-Azar in Milan. C. Semenza.—p. 447.
Influence of Concomitant or Preceding Pleuritis on Evolution of Pulmonary Tuberculosis. A. Moretti.—p. 450.

True Narcolepsy and Its Treatment.—Benedek and von Thurzó report a case of true narcolepsy observed over a long period in their clinic in a man, aged 48. The patient had from twenty to thirty attacks of sleep during the day, during which he executed movements back and forth, evidence of the patient's struggle to overcome the muscular asthenia. Stimuli of moderate intensity did not rouse the patient. The results secured from the administration of stimulants and sedatives were not satisfactory, whereas repeated suboccipital insufflations of air brought about a cessation of the attacks and the patient has returned to his work. In applying the foregoing treatment, after the suboccipital puncture the authors waited for the outflow of cerebrospinal fluid and then gave an insufflation of from 30 to 40 cc. of air.

Rivista di Patologia e Clin. della Tubercolosi, Bologna

5: 1-84 (Jan. 31) 1931

Comparative Researches on Biologic Test and Cultural Test in Diagnosis of Tuberculosis. G. Daddi.—p. 1.
Hereditary Tuberculosis and B C G Vaccine. M. Scarzella.—p. 9.
*Possibility of Reactivating Therapeutic Pneumothorax Previously Suspended. A. Zambianchi.—p. 34.
Spontaneous Pneumothorax with Large Hernia of Mediastinum. A. Guerricchio.—p. 48.
Mechanism of Action of Partial Artificial Pneumothorax. G. Bonanni. —p. 52.
Seven Cases of Simultaneous Bilateral Pneumothorax. A. Muggia.—p. 58.
*New Type of Needle for Pneumothorax. C. Melani.—p. 62.

Possibility of Reactivating Therapeutic Pneumothorax Previously Suspended.—Zambianchi reports his observations in six cases of interrupted pneumothorax in which, without any difficulty, it proved possible to reestablish therapeutic pneumothorax. In two other cases, pneumothorax could not be reestablished. In one of these two cases, pleural adhesions due to pleuritis were found during the first treatment. In the second case, the pneumothorax having been discontinued during the complete activity of the tuberculous process, a corticopleuritis with pleural adhesions and thoracic retraction developed in the interval. It is the opinion of the author that therapeutic pneumothorax, if carried out with proper technic and adequate attention to asepsis, does not constitute in itself sufficient traumatism to provoke pleural adhesions.

New Type of Needle for Pneumothorax.—Melani suggests a new type of needle for pneumothorax. This needle has been in use for some time in the department of diseases of the chest in the Spedali Riuniti of Pistoia and in the Antituberculosis Dispensary, and has never caused any trouble and has never become stopped up, either in the first introduction or in the numerous repetitions.

Archivos de Cardiología y Hematología, Madrid

12: 45-83 (Feb.) 1931

*Postoperative Embolism and Thrombosis: Etiology and Pathogenesis. R. Diaz Sarasola.—p. 45.
Myelogenous Leukemia: Case. A. Diaz Flórez.—p. 62.

Postoperative Embolism and Thrombosis.—Díaz Sarasola discusses the etiology and pathogenesis of postoperative embolic thrombosis. The appearance of postoperative embolism indicates the preexistence of a peripheral thrombotic process of slow evolution in the venous system. In the occurrence of postoperative embolism the essential factor is a predisposition for the formation of a thrombus; that is, a condition of latent thrombophilia whose factors are (1) alterations of the circulation (such as a diminution in the velocity of the venous circulation), (2) alterations in the composition of the blood (variations of the fibrinogen content of the blood, or viscosity) and (3) alterations of the vascular endothelium (as those caused by preexistent or coexistent processes or trauma). The author discusses the influence that surgery may have by activating the thrombophilic factors, which activation may result in the actual occurrence of embolism. In considering the influence that surgery may have on the first thrombophilic factor (alterations of the circulation with diminution in the velocity of the venous circulation) one may consider the cardiac debility and hypotension which as a rule follow any operation and which are due to several causes, such as the trauma of the operation, the lack of sleep, the loss of blood and especially the toxic action of the anesthetic (either chloroform or ether) on the myocardium, since the debility of the myocardium plays an important part in the etiology and pathogenesis of thrombosis. Some suggestions are given for the treatment of patients who have to remain a long time in bed. In considering the influence that surgery may have on the second thrombophilic factor (alterations in the composition of the blood with variations in its fibrinogen content and viscosity), the author describes certain morphologic, serobacteriologic and physicochemical alterations observed in the blood of patients after surgical interventions. He also gives advice on prophylaxis, such as the abundant administration of fluids to the patients and the use of an operative technic with as little trauma as possible. In relation to the possible influence of surgery on the third thrombophilic factor (alterations of the vascular endothelium), the appearance of noxae which provoke endothelial reactions affecting the endothelial cells is considered. In the occurrence of postoperative embolism and thrombosis there exists a special condition of debility of the venous system, which is in relation to a neuro-arthritic diathesis with external habitus of the torpid type. There exists a familial type, the so-called adipose-asthenic type, which includes the embolic subtype and in which the occurrence of embolism and thrombosis is frequent. In the same manner that one considers a hemophilic habitus (which seems to develop only in men) there are persons (as a rule women) who have a tendency to the occurrence of postoperative embolism and thrombosis. In these persons, who, in contradistinction to hemophilic patients, should be designated as "thrombophilic patients," postoperative embolism or thrombosis occurs in conditions in which the most careful examination to discover a possible alteration of the vessels or the association of infections or trauma fails to explain the cause of the embolic process. This fact is explained only on the basis of the preexistence of a constitutional condition either congenital or acquired either after vascular diseases affecting the venous system or after some diseases affecting the composition of the blood. The author wonders what influence the presence of tumors has on the organism to cause in it a predisposition for the occurrence of thrombosis. The presence of tumors may have a double influence on the predisposition to thrombosis, both because of the alterations that the waste products cause in the vascular endothelium and because of the alterations in the composition of the blood caused by the products of the tumor, favoring thus indirectly the tendency to the development of thrombosis.

Semana Médica, Buenos Aires

38: 601-668 (March 5) 1931. Partial Index

*Partial Subcutaneous Symphysiotomy in Complicated Fetal and Maternal Dystocia. M. V. Falsia.—p. 634.
Asthma: Treatment with Sulpharsphenamine. F. J. Liceaga.—p. 636.
*Recidivation of Carbuncle: Summary of Case Reports. R. F. Vaccarezza. —p. 653.
Accessory Lobe of Azygos Vein: Abnormalities of Lung. G. Gotta.—p. 654.
Constitutional Vasodilatation with Idiopathic Permanent Low Arterial Tension. A. Ferrannini.—p. 662.

Partial Subcutaneous Symphysiotomy in Dystocia.—Falsia's patient, a multipara, aged 33, at full term had weak labor pains which continued all night and until early the next morning, when the membranes ruptured spontaneously. The condition, however, did not progress to actual delivery. On inspection, the fetus was found to be alive though the beats of its heart were weak. The presentation was cephalic, though the

head had not as yet descended into the pelvic cavity. The umbilical cord was prolapsed and a loop of it projected out of the vulva. The cervix was incompletely dilated and there were indications of a grave disturbance in the fetal circulation. Under these circumstances, both cesarean section and internal version seemed to be contraindicated. After several attempts, the umbilical cord was returned to the uterine cavity. Immediately the beats of the fetal heart improved both in rhythm and in strength. After three hours of waiting, with normal dynamics of the uterus, a disproportion of the size of the fetal head in relation to the size of the pelvis became apparent. The head of the fetus could not pass through the pelvis. A partial subcutaneous symphysiotomy according to Zarate's method was performed. Ten minutes later the spontaneous delivery of a live male child (with slight asphyxia from which he was rapidly reanimated) occurred. Both the mother and the infant did well and they were discharged in a normal condition eleven days later.

Recidivation of Carbuncle.—Vaccarezza utilizes four clinical histories of patients with carbuncle in support of his opinion that the recidivation of a carbuncle is not so infrequent as it is believed. The same person may develop cutaneous carbuncle two or more times, as is proved by the anamnesis of the author's patients. The evolution of the process is not attenuated in the recidivation, which may be even more severe than the first attack. One of the author's patients died during the recidivation of the carbuncle.

Deutsche medizinische Wochenschrift, Berlin

57: 525-566 (March 27) 1931

Prognosis in Puerperal Sepsis. H. Schulten.—p. 525.
*Blood Pressure as Tonus Regulator of Parasympathicus. H. E. Hering. —p. 528.
Gallbladder Disturbances and Carbohydrate Metabolism. H. Strauss. —p. 530.
Symptomatology of Lymphangitis Carcinomatosa of Lung. E. Lucas and H. Pollack.—p. 532.
Comparative Measurement of Lower Extremities. R. Sommer.—p. 533.
*Mumps Meningitis. K. Holtz.—p. 536.
Mechanism of Action of Extracts of Posterior Lobe of Hypophysis on Colon. A. Oppenheimer.—p. 537.
Sedimentation Reaction in Rheumatic Disorders. E. von Balden.—p. 538.
Demonstration of Bilirubin in Skin of Patients with Icterus. K. Jegoroff. —p. 539.
*Pregnancy and Confinement of Woman in Whom Masculine Characteristics Had Disappeared Following Removal of Ovarian Tumors. E. Strassmann.—p. 540.

Blood Pressure as Tonus Regulator of Parasympathicus.—Hering shows that the blood pressure regulates the tonus of the parasympathicus by means of the aortic nerves and of the sinus nerves. Thus the blood pressure regulators are tonus regulators of the parasympathicus. In arterial hypertension, the vasoconstrictor tonus of the coronary vessels of the heart and of the bronchi is increased; in hypotension it is decreased, provided no other factors counteract these actions. When making the carotid pressure test on the neck it is important to differentiate the carotid sinus pressure experiment from the carotid pressure experiment, because these two pressure tests, when correctly done, have directly opposite effects. Pressure on the carotid sinus increases, but pressure on the carotid decreases the tonus of the parasympathicus. The author gives a diagram which indicates the two points of pressure.

Mumps Meningitis.—Holtz points out that among the manifold complications of epidemic parotitis the most serious one is meningitis. It is not so rare as might be assumed, and it is most frequent in young children. With increasing age it becomes rarer. The course of the meningitis is usually mild and the patients recover, but fatalities have also been observed. The symptomatology of the meningitis, which complicates epidemic parotitis, is just as manifold as that of parotitis itself. In some instances it shows the typical meningitis manifestations; in other cases there is a scarcity of symptoms, and occasionally it is masked by psychic disorders such as delirium or psychosis. The author gives the clinical history of a woman, aged 39, in whom parotitis was complicated by suppurative meningitis. This case is noteworthy for the lack of characteristic symptoms. Increased temperature, vomiting and slowing of the pulse were absent. Only on the third and on the seventh day the woman had a slightly increased temperature. The stiffness of the neck was of a minor degree. The principal symptoms were rapid loss of speech, somnolence and unconsciousness. Other symptoms, which indicated a cerebral process, were pupillary disturbances, ptosis, spasms of the masticatory muscular apparatus and headaches. The patient recovered. Following a discussion of the differential diagnosis of this case the author describes the results of the tests of the cerebrospinal fluid. He states that in most case reports of parotitis meningitis a lymphocytosis is mentioned. In this instance there was at first a pure polynucleosis, but in the second and third punctates there were 21 per cent and 60 per cent of lymphocytes, respectively, and in the last punctate a pure mononucleosis was detected. However, these observations cannot be cited against the diagnosis of parotitis meningitis. The author maintains that from the cell reaction of the cerebrospinal fluid no reliable conclusion can be drawn regarding the etiology of a meningitis. The cell picture changes according to the phase of the disease not only in meningitis but probably also in poliomyelitis and in encephalitis. In the acute stage, in many cases perhaps only during the first few hours of the meningeal reaction, there exists a polynucleosis, which in the further course of the disease changes into a mononucleosis. From this the author concludes that, in the evaluation of the cell reaction of the cerebrospinal fluid, the phase of the disease should be taken into consideration.

Pregnancy of Woman in Whom Masculine Characteristics Disappeared Following Removal of Ovarian Tumor.—Strassmann states that the woman whose case he reported in the *Deutsche medizinische Wochenschrift* (**55**:1922 [Nov. 15] 1929; abstr. THE JOURNAL, Jan. 25, 1930, p. 300), who had developed masculine characteristics as the result of an ovarian tumor and in whom these had disappeared following removal of that tumor, subsequently became pregnant and gave birth to a healthy boy. Pregnancy, confinement and puerperium took an entirely normal course. The author asserts that in only three of the thirty-two case reports on masculinization as the result of an ovarian tumor was a subsequent pregnancy mentioned. For this reason he considers this case as noteworthy.

Klinische Wochenschrift, Berlin

10: 529-576 (March 21) 1931

Hypoglycemia in Insulin Medication. E. Wiechmann.—p. 529.
*Desensitization of Persons with Pollen Allergy by Means of Oral Administration of Pollen Peptones. E. Urbach.—p. 534.
Pharmacologic Modification of Reticulo-Endothelial System. N. von Jancsó.—p. 537.
Practical Experiences on Occurrence and Clinical Significance of Paratyphoid C Strains in Human Beings. K. W. Clauberg.—p. 540.
Therapeutic Experiences in Pleural Empyema During Childhood. G. Paschlau and E. Lehmann.—p. 542.
Occurrence of Melanogen in Urine of Normal Persons Following Exposure to Sunlight. Jui-Wu Mu.—p. 547.
Constitutional Predisposition for Dementia Paralytica. W. Skalweit. —p. 548.
Streptococci in "Normal" White Mice. H. Grossmann.—p. 551.
Serologic Demonstration of Syphilis in Cerebrospinal Fluid by Means of Citochol (Sachs-Witebsky) and Kiss Reactions. O. Fischer.—p. 552.

Desensitization of Persons with Pollen Allergy.—Urbach demonstrates experimentally that in diseases of the mucous membrane due to allergy, as for instance in idiosyncrasy to hen eggs, the allergic reactivity can be counteracted (even if only temporarily) by the oral administration of homogenous substances shortly before the meal. He terms this the propeptone treatment. In a case of pollen allergy of the mucous membrane (so-called hay-fever), which was accompanied by generalized manifestations such as fever, eosinophilia and enlargement of the spleen, it was likewise possible to counteract the pollinosis and the general manifestations by oral propeptone therapy with homogenous pollen preparations. The specificity of the allergy of the nasal mucous membrane is determined by direct local (nasal) test with diluted pollen preparations. The author stresses the following advantages of the oral propeptone therapy: (1) The possibility of treatment during an attack, which eliminates the time consuming intracutaneous preliminary treatments; (2) absolute harmlessness; (3) painlessness, and (4) the possibility of making specific diagnoses by the administration or elimination of the various propeptones.

Medizinische Klinik, Berlin

27: 491-530 (April 2) 1931

*Early Diagnosis of Cancer of Female Genitalia. O. von Franqué.—p. 491.
*Phantom Limb. O. Foerster.—p. 497.
New Observations on Pathology and Treatment of Diabetes Mellitus: Attempts to Influence it by Surgical Intervention. F. Depisch.—p. 501.
Etiology of Linitis Plastica. A. Jacobson.—p. 504.
*Incarcerated Internal Hernia Simulating Acute Appendicitis. E. Traum.—p. 506.
Localization of Cerebral Process in Patient with Posture Perseveration. H. Hoff and P. Schilder.—p. 507.
Experiences with Gerson-Sauerbruch-Herrmannsdorfer's Diet in Tuberculous and Other Inflammatory Dermatoses. J. Schlammadinger and E. Szép.—p. 508.
Animal Experiments on Efficacy of Acetarsone in Syphilitic Infections of Central Nervous System. H. Horster.—p. 511.

Early Diagnosis of Cancer of Female Genitalia.—Von Franqué points out that, although the general practitioner is in most cases not in a position to treat carcinoma of the female genitalia, his part in the early diagnosis is nevertheless of primary importance in the combat of cancer. He stresses the necessity of a careful genital examination of every female patient with genital or abdominal symptoms, and he also recommends that women over 35 years of age, who have borne a child, should be advised to undergo a gynecologic examination every year or at least every two years. He further discusses the symptoms by which cancer of the female genitalia can be recognized, especially the abnormal bleedings, and he also emphasizes the significance of curettage. After evaluation of symptoms and methods for recognition of carcinoma of the portio vaginalis and of the corpus uteri, he discusses the diagnosis of carcinomas of the vagina, vulva, uterine tubes and ovaries.

Phantom Limb.—As phantom limb Foerster designates that peculiar phenomenon whereby a person who has lost an arm or a leg still feels that he has it. Moreover, the person not only feels that his limb is still connected with his body but he has certain definite sensations. Many of them feel that the hand or the fingers of the amputated arm are warmer than the remaining hand; rarely they feel it colder. The phantom limb is also often the cause of intense pains. In persons in whom the arm has been amputated the pains are usually localized in the fingers and in the hand; in those in whom the leg has been amputated the pains are generally felt in the foot and in the toes. The pains are characterized as piercing, cutting or burning. Some persons feel them constantly and others only periodically, and many have the sensation of crushing. The pains are so severe that many of these persons become addicted to morphine. Attempts to influence the pains by suggestion were found useless. However, one patient who had the feeling that his thumb was piercing his hand could overcome this pain by volition; that is, when he made a mental effort to pull the thumb out of his hand. However, as soon as he discontinued this act of volition the pain returned. This shows that the pain can be influenced by the will. A number of persons who have lost a limb state that the phantom limb feels shorter and more slender than the healthy limb, and they also report that the limb becomes gradually shorter in the course of time. But the most interesting aspect of the psychic experience of the phantom limb is that it is felt in a certain position. Inquiries from persons in whom the upper part of the arm had been amputated revealed that they felt it abducted, the forearm bent, the hand prone and hand and fingers bent. Amputated legs are rarely felt in an abnormal position. In the second part of the article the author discusses the cerebral and psychic processes on which the phenomenon of the phantom limb is based.

Incarcerated Internal Hernia Simulating Acute Appendicitis.—Traum points out that the so-called internal hernias, that is, those in preformed peritoneal pockets, may lead to diagnostic errors. In regard to the pathogenesis of the peritoneal pockets he refers to the literature. He then reports the case of a man, aged 64, who suddenly developed severe pains in the hypogastric region on the right side. The pains persisted to the following day and the patient had three attacks of vomiting and frequent eructations. Flatus and evacuation of the bowels ceased since the onset of the pain. An acute appendicitis was assumed and an appendectomy was considered advisable. However, the appendix showed no signs of inflammation. The incision was extended and the entire small intestine was examined. Diverticula were not found, but one loop of the small intestine showed signs of a prolonged incarceration. Resection of this loop was not necessary, because after the loop had been freed its peristalsis and red coloration returned. The loop had been incarcerated in an opening of the posterior parietal peritoneum closely beside the cecum. Whether the opening, which was 3 cm. in length, was of traumatic origin or whether it was a preformed pocket could not be definitely decided. Signs of inflammation could not be detected. The peritoneal opening was closed by means of three button sutures, and the abdomen was closed again. The postoperative course was free from fever, and the patient recovered. In the conclusion the author points out that, if laparotomy is done for the purpose of appendectomy and the appendix is found to be free from pathologic changes, the possibility of an internal hernia should be taken into consideration, particularly when symptoms of intestinal occlusion are present. In such cases one should carefully examine the intestine so as not to overlook an internal hernia.

Münchener medizinische Wochenschrift, Munich

78: 519-560 (March 27) 1931

Injuries of Blood Caused by Roentgen Irradiation. W. Fürst.—p. 519.
Twin Pregnancy and Blood Group Investigations. H. Merkel.—p. 522.
New Method for Testing Function of Insufficient Heart. F. Bilski.—p. 523.
*Auscultation in Smokers Who Inhale. W. Hildebrandt.—p. 524.
Abstinence Manifestations Caused by Nicotine. H. Beer.—p. 525.
Reactionless Perforation of Foreign Body Through Uterus into Abdominal Cavity. E. Fels.—p. 526.
Treatment of Hyperemesis Gravidarum with Dextrose and Insulin. B. Kriss.—p. 527.
Allergic Diseases. W. van Leeuwen.—p. 529.
Special Bandage for Treatment of Foot Distortion. H. Schwan.—p. 534.

Auscultation in Smokers Who Inhale.—The practice of inhaling tobacco smoke into the lower respiratory passages has, according to Hildebrandt, considerably increased in recent years. In considering the influence of inhalation of tobacco smoke on the respiratory passages one should differentiate between the superficial corrosive action of nicotine on the mucous membrane, which is also observed in "mouth" smokers, and the action of nicotine on the deeper layers of the bronchial wall, on its vessels, nerves and nonstriated muscles. In addition to this there is the nervous influence on the respiratory apparatus, which follows the resorption of the nicotine by the blood and the poisoning influence on the central nervous system. The author describes three types of disorders that result from inhalation. The first type is a chronic bronchitis, which is probably mainly due to the surface corrosion by nicotine. Auscultation reveals in such cases tenacious, fine and medium râles, which, when the patient is told to cough, are audible over the entire lung. In the case of chronic bronchial catarrh without fever, one should think of smokers' bronchitis. A second group of inhalers of tobacco smoke have bronchospasms that are similar to light forms of bronchial asthma. The sputum of these patients is tough and scanty, like that of those with chronic bronchitis. The spastic contraction of the bronchi is best noticeable if the patient is told to cough during auscultation. In these patients the lung is frequently distended. In a third group of patients the bronchi are in a state of laxity. Whereas normally the bronchi show a certain elasticity during a cough, one gains here the impression as if during coughing the bronchi yielded readily to every pressure; in short, the bronchi react in the same manner as in chronic bronchitis, in which they are dilated and paretic. Besides these three main forms there are numerous intermediate forms. The subjective symptoms differ greatly and may be entirely absent. Frequently there is a feeling of pressure on the chest. It is often difficult to decide whether this pressure is due entirely to disorders in the respiratory organs or whether it is caused by the influence of the nicotine on the coronary arteries. Piercing pains somewhere in the chest, together with coughing and sputum, are often the complaints on account of which inhalers of tobacco smoke seek medical advice, because they fear a beginning of tuberculosis. The differential diagnosis is often difficult, especially when old healed tuberculous foci are present. For the treatment of patients who have developed respiratory disorders following the inhalation habit, the author recommends complete

abstinence from smoking. A mere limitation is without effect. He also points out that the habitual inhalers develop an addiction, which is difficult to overcome.

Zeitschrift für Kinderheilkunde, Berlin

50: 657-789 (March 20) 1931

*Icterus Neonatorum as Indication of Conclusion of Maturation of Fetus. W. Ortloph.—p. 657.
Investigations on Tetanigenous Action of Urinary Extracts from Spasmophilia Nurslings. A. Nitschke.—p. 662.
Multiple Congenital Atresia of Small Intestine. E. Pawlowski.—p. 665.
*Prophylaxis of Icterus Neonatorum Gravis. J. Bernheim-Karrer and M. Grob.—p. 672.
Experiences with Active Scarlet Fever Immunization. G. Herholz.—p. 680.
Newer Conceptions of So-Called Congenital Pyloric Stenosis. W. Lehmann.—p. 691.
Anatomic Foundations of Pyloric Stenosis in Infants. A. Dietrich.—p. 703.
Acid-Base Balance: Influence of Hydrochloric Acid on Diabetes Mellitus. H. Fasold.—p. 715.
*Relations Between Iso-Agglutination and Icterus Neonatorum. M. Grob.—p. 726.
Diphtheria Immunization with Löwenstein's Ointment. G. Blumenthal and E. Nassau.—p. 742.
Functional Capacity of Pancreas in Children. O. Kitaigorodskaja.—p. 748.

Icterus Neonatorum as Indication of Conclusion of Maturation of Fetus.—Ortloph maintains that icterus neonatorum is a physiologic process. He first reviews the observations of many investigators who have studied the etiology of icterus neonatorum. Especial attention is directed to Ziegelrot's observation that the number of erythrocytes in the fetus before maturation is considerably larger than in the mature fetus, because the fetal organism requires a larger number of erythrocytes in order to obtain sufficient oxygen. After maturation, however, the excessive number of erythrocytes diminishes. Tests have also revealed that all new-born infants have a blood icterus. The only difference between icteric and nonicteric infants is in the varying reaction capacity of the tissues and of the skin. The author shows that the icterus is due to a cessation in the maturation processes. Maturity in the fetus he defines as the completion of the functional differentiation of the tissues, so that each tissue is capable of performing an extra-uterine metabolic function, without the assistance of the maternal organism. If this degree of maturity has been reached there is a standstill in the differentiating cell construction. However, nature does not tolerate a standstill and regressive processes set in. These regressive processes become manifest in the susceptible erythrocytes. The antagonism between spleen and bone marrow becomes manifest. The bone marrow counteracts the marked hyperplasia of the erythrocytes (Ziegelrot), and large numbers of them disintegrate. Their hemoglobin serves as material for the bile pigments, whereas the iron remains in the cells of the reticulo-endothelial system. The oversupply of bile pigment cannot be entirely secreted by the liver and thus a more or less marked icterus may develop.

Prophylaxis of Icterus Neonatorum Gravis.—Bernheim-Karrer and Grob point out that the cause of icterus neonatorum gravis is not yet completely understood. On the ground that it may be the result of the poisoning of the fetal blood by products of the maternal metabolism, all those measures have been introduced for its prevention, which are customary in pregnancy toxicoses, but without much success. For this reason the authors tried liver therapy. A pregnant woman, who had lost two infants as the result of icterus neonatorum gravis, was given daily 100 Gm. of boiled liver during the last ten weeks of her third pregnancy. When the infant was born it had only a slight icterus. But since in families with icterus gravis children may be born without icterus, this one case is not entirely convincing, and the authors investigated whether perhaps icterus neonatorum simplex, which is comparatively frequent, can be prevented by liver therapy during gestation. Tests revealed that in the offspring of anemic women, who during the last weeks of gestation had been given liver therapy, icterus neonatorum was less frequent and less severe than in the offspring of women who had not been given liver therapy. The resistance of the erythrocytes in the umbilical cord and in the infant during the first days of life toward hypotonic solutions of sodium chloride was tested. It was found that the resistance was reduced in nearly all cases, in those in which liver treatment had been instituted as well as in those in which liver treatment had been omitted. Since the liver diet does not exert its influence by counteracting the reduced resistance of the erythrocytes, it is assumed that its efficacy in icterus neonatorum is due to its inhibitory action on the hemolysis, which in turn causes a slower increase in the bilirubin content of the blood.

Relations Between Iso-Agglutination and Icterus Neonatorum.—In order to determine what significance iso-agglutination processes have for the genesis of icterus neonatorum (Lenart's hypothesis), Grob studied the blood group conditions of 100 icteric new-born infants and their mothers. 1. He found that the percental distribution of the different blood groups in mothers and in children, both boys and girls, was about the same. 2. There were 52 per cent of homospecific gravidities and 48 per cent were heterospecific. A preponderance of heterospecificity could not be demonstrated in icterus neonatorum. 3. Agglutinophilic relations were detected in only one third of the cases. This proves that these agglutinations can never be the only or main cause of icterus. 4. However, that they do have a certain significance in the genesis of icterus can be deduced from the fact that between the degree of icterus and the frequency of these agglutinophilic relations there is a certain proportionality. Thus there are several etiologic factors in icterus neonatorum. The author further investigated whether iso-agglutination of the corpuscles of the infant by resorbed maternal milk is of significance in the pathogenesis of icterus. He determined the agglutinin content of the milk of 100 mothers whose infants had icterus, and he also tested the corpuscles of the children for agglutination by mother's milk. The results of these tests were as follows: 1. In 84 per cent of the cases the milk contained agglutinins, in the other 16 per cent they were absent. The latter cases belonged primarily to blood group II. 2. In 67 per cent of the women it was found that their milk contained the same agglutinins as their blood serum. 3. In five cases of the blood group IV not all the expected agglutinins (α and β) were present. The agglutinin against the corpuscles of the group III ($= \beta$) were generally absent. 4. In 12 per cent of the cases the so-called X-group of milk was detected. It contains agglutinins against the blood group IV as well as against homospecific corpuscles. 6. A modification of the degree of icterus by the milk agglutination was not demonstrable. 7. Even if consideration is given to an eventual milk agglutination in the blood of icteric new-born infants, iso-agglutination manifestations cannot be demonstrated in even one half of the icterus cases. Thus they cannot be of primary importance for the genesis of icterus neonatorum.

Zeitschrift für Krebsforschung, Berlin

33: 415-528 (March 20) 1931

Production of Tumors by Means of Embryonal Pulp of Tumor Animals. F. P. Tinozzi.—p. 415.
Benign Tumors of Sweat Glands. M. Glasunow.—p. 431.
Primary Cancer of Liver. M. Sclowej.—p. 442.
Attempts at Transmission of Rous Sarcoma by Inoculation of Cell-Free Tumor Centrifugates. E. Fränkel.—p. 451.
*Experiments on Cell-Free Transmission of Tumors of Mammals. E. Fränkel.—p. 454.
Analysis of Ambulatory Material of Institute for Treatment of Tumors in Moscow. F. Lampert and B. Milonoff.—p. 456.
Carcinoma a Deficiency Manifestation of Organism. E. Simons.—p. 462.
Growth Law of Malignant Tumors. L. Karczag and J. Jany.—p. 470.
*Experimental Bone Sarcoma Developing in Rabbit After Radium Irradiation. O. Schürch and E. Uehlinger.—p. 476.
Experimental Blastomatous Growth During Gravidity and Lactation. J. P. Mischtschenko.—p. 485.
Modification of Medium by Growth of Normal and of Neoplastic Cells: Studies on Cultures in Vitro. A. H. Roffo.—p. 500.
Experimental Modification of Histologic Structure of Carcinoma. K. Löwenthal.—p. 521.

Cell-Free Transmission of Tumors of Mammals.—Fränkel succeeded in transmitting Ehrlich's carcinoma to a mouse by means of a suspension of tumor material that had been subjected to autolysis and to filtration. He admits, however, that the filter he used had large pores, so that there is a possibility of cells having passed through. In another experiment he transmitted Ehrlich's sarcoma by means of spleen pulp from a tumor animal, and in spite of the fact that metastases did not develop it was possible to transmit the tumor to yet another animal by means of the heart blood of the animal into

which the spleen pulp had been inoculated. The histologic structure of the tumors did not differ from that of Ehrlich's carcinoma. The author points out that the filtrate experiment was successful in a pregnant mouse. Whether, and in what manner, predispositional factors are of significance for the positive results of this rarely observed cell-free transmission could not be determined in these experiments.

Bone Sarcoma in Rabbit After Radium Irradiation.—Schürch and Uehlinger irradiated the angle of the jaw of a rabbit by introducing underneath the periosteum a platinum needle containing 1 mg. of radium element. In order to produce a strong secondary radiation they laid a small steel plate over the platinum needle. The needle and the plate remained in place for twenty days. Eighteen months after removal a tumor developed on the site of irradiation. Microscopic examination of the tumor revealed that it had the structure of an osteogenic sarcoma.

Zeitschrift für Tuberkulose, Leipzig

60: 1-96 (March) 1931. Partial Index

Healing of Tuberculous Cavern. F. Koester.—p. 1.
Relation Between Tuberculosis Mortality and Decreased Birth Rate. O. Glogauer.—p. 7.
Results of Inquiries on Conditions of Children Exposed to Tuberculous Infection. E. Seiffert.—p. 15.
*Tuberculosis of Bronchial Lymph Nodes in Adults. E. Schulz.—p. 24.
*Functional Test of Circulatory Apparatus and of Sympathetic Nervous System in Pulmonary Tuberculosis. F. A. Michailow.—p. 40.

Tuberculosis of Bronchial Lymph Nodes in Adults.—Schulz states that the overestimation of Ranke's theory that tuberculosis begins in the lungs has had the effect that certain tuberculous processes are overlooked. Formerly it was thought that tuberculosis of the bronchial lymph nodes occurred only in children, but more recent observations have proved that it may also occur in adults. Since the usual dorsoventral roentgen exposures do not always reveal changes in the hilus region, it is suggested to supplement them by oblique exposures. The author shows roentgenograms of oblique exposures from patients who show disease symptoms of a tuberculous toxic nature, but in whom pulmonary processes are not present. Among these patients he observed some with asthma in whom the bronchial lymph nodes were considerably enlarged. He considers these enlarged lymph nodes as the tuberculous focus, which is influenced by tuberculin therapy and thus also influences the asthma. He thinks that only these forms of asthma are influenced by tuberculin therapy, and he disagrees with other authorities who assume a nonspecific effect of tuberculin on asthma. He maintains that, without the presence of a tuberculous focus in the organism, tuberculin is ineffective. In the conclusion, attention is directed to favorable effects of a combined tuberculin and gold therapy.

Test of Circulatory Apparatus and of Sympathetic Nervous System in Pulmonary Tuberculosis.—On the basis of his observations, Michailow reaches the following conclusions: 1. The impairment of the functional condition of the circulatory system in advanced tuberculosis goes parallel with the increase in toxemic manifestations. 2. The methods in which the circulatory system serves as indicator may be used for the determination of the functional condition of the sympathetic nervous system only when the circulatory system is in a fairly satisfactory condition. 3. The theory of the uneven tonus of certain parts of the sympathetic and the parasympathetic system cannot be considered as definitely established. 4. Of the simple methods of examination, which were employed for the determination of the functional capacity of the circulatory system, those that employ physical exertion are the most reliable. 5. In order to estimate the degree of compensation in the tuberculous organism, not only the general toxemic manifestations, such as temperature and perspiration should be considered but also the functional condition of the circulatory system.

Russkaya Oto-Laringologiya, Leningrad

23: 409-547, 1930

Infections of Upper Respiratory Passages and Ear in Scarlet Fever. J. M. Potapov.—p. 409.
*Strains of Streptococci in Tonsils of Healthy Persons. S. L. Utevskaya and R. J. Pekker.—p. 422.
Importance of Bacteriologic Diagnosis in Ear, Nose and Throat Diseases. J. Bomshtein.—p. 429.
Otorhinolaryngologic Service in Karelia. B. M. Mletchin.—p. 436.
Laryngeal Stenoses of Tuberculous Origin. J. S. Gondelman-Binshtok.—p. 444.
Plastic Surgery for Atresia of External Auditory Canal. S. A. Proskuriykov.—p. 453.
*Adenotomy: Six Thousand Cases. A. J. Fink.—p. 459.
Hereditary Factor in Genuine Ozena. A. E. Tamarina and V. N. Elterman.—p. 469.
Embolus of Arteria Auditiva Interna with a Consequent Involvement of Osseous Labyrinth: Case. E. Harshuk.—p. 478.
Oesophagitis Exfoliativa: Case. A. V. Tenyev.—p. 485.
Passive and Active Movements of Tympanic Membrane: Case. F. A. Oks.—p. 489.
Juvenile Tuberculosis of Larynx: Case. R. D. Bogomilskiy.—p. 494.
External Esophagotomy in Foreign Body Extraction: Case. P. A. Ikonnikov.—p. 498.

Strains of Streptococci in Tonsils of Healthy Persons.—Utevskaya and Pekker state that, among the bacteria of the oral cavity, streptococci are those which at present attract the utmost attention of all modern investigators on this subject. It is easy to understand if one takes into consideration the number of illnesses provoked or complicated by them as well as the volume of the research work on cryptogenic infection, in which streptococci play the main part. The importance of streptococci in the pathogenesis of tonsillar infections was confirmed lately by the work of many American authors. Nichols and Bryan found streptococci in 75 per cent of all tonsils removed, Pilot and Davis in 97 per cent, Bell in 70 per cent and so on. All the observers studied not only the frequency of streptococci in the tonsils but also their various characteristics. The description of the species of different streptococci was entirely omitted. The authors not only endeavored to give a bacteriologic description of each group of streptococci revealed, utilizing the technics of Klimer, Worth and Pesch, but also studied them from the morphologic and cultural as well as the biochemical and pathogenic aspects. The biochemical characteristics of the streptococci were investigated by their ability to split carbohydrates and fats. The experiment included 104 cases of absolutely healthy persons without any evidence of tonsillitis or any other visible lesions in the oral cavity. Bacterioscopically the streptococcus was discovered in 48 per cent of all cases and bacteriologically in 100 per cent; the latter figure considerably exceeds the observations of the American investigators mentioned. The authors join that group of investigators which holds that the streptococcus is the permanent inhabitant of the tonsils. The prevailing strain is *Streptococcus hemolyticus* (61.5 per cent). Second in order is the so-called anhemolytic streptococcus (21.1 per cent). The lactic acid streptococcus figures in 10 per cent of the cases and the most infrequent is the *Streptococcus viridans* group (around 8 per cent). The authors stress the fact that the importance of the microflora of the healthy tonsils should not be underestimated or belittled and that infected tonsils should be removed.

Adenotomy: Six Thousand Cases.—Fink performed 6,000 adenotomies and reports most favorable results. Concerning diagnosis he admits that he never used posterior rhinoscopy or pharyngoscopy, usually applying digital examination. He avoids the listing of all the well known indications for adenotomy but emphasizes the importance of a few of them. As a main absolute indication he mentions difficult nasal breathing. He often operated also for some remote effects of hypertrophied adenoids, such as increased nervousness in children, and their mental and physical backwardness. As a frequent indication he finds an adenoid obstructing the opening of a eustachian tube. All the patients were operated on in the dispensary. The author does not believe in the unbased fears of many otolaryngologists that adenotomy cases must be hospitalized on account of the great danger of postoperative hemorrhage. Neither general nor local anesthesia was employed with the exception of three cases in which the children were extremely unmanageable. Two hours after the operation, if there is no bleeding, the child is discharged without even a tampon. Among the complications of adenotomy the author enumerates elevation of temperature as the most frequent, tonsillitis, tonsillitis with a peritonsillar abscess, otitis media with drum perforation, tuberculous meningitis, and pyrexia with a scarlatinous rash. The rest of the pyrexia cases he relates to the so-called idiopathic pyrexias, which disappear by themselves in a period of from three to ten days. Contrary to many authorities, the author points out that adenotomy should be performed even in children with enlarged bronchial lymph nodes when there is a definite indication for it (oral breathing

with a predisposition for tuberculosis and so on). Among the other hazards of adenotomy he mentions torticollis (three cases; all the patients got well) and hemorrhage (eight cases; all were so slight that even no tamponade was necessary). In 6,000 adenotomies, 2 deaths occurred (due to generalized tuberculous process). The author stresses that the only aim of adenotomy is the establishment of normal nasal breathing, which has so much to do with the future of the child.

Vrachebnaya Gazeta, Leningrad

No. 1: 1-76 (Jan. 15) 1931

Bacteria: Their Dissociation and Constitution. S. J. Zlatogorov and B. J. Mogilevskaya.—p. 9.
*Mitogenetic Radiation: Method of Early Diagnosis in Cancer. L. D. Gurvich.—p. 16.
Tuberculosis: Clinical Forms in Relation to Constitution. M. M. Bock.—p. 20.
Scientific Bureau for Disability Survey. K. J. Baryshnikov.—p. 28.
Erythrocyte Sedimentation Reaction in Diseases of Liver. M. Rapoport.—p. 33.
*Early Recognition of Pregnancy. G. J. Russin.—p. 36.

Mitogenetic Radiation: Method of Early Diagnosis in Cancer.—The phenomenon of mitogenetic radiation as a method of early diagnosis of cancer was discovered in 1925 by the Gurviches. They brought out at that time that the process of blood radiation is based on oxidation which depends on the action of oxyhemoglobin. L. D. Gurvich demonstrates in the present article that substances which were oxidized and have produced the mitogenetic effect are the polypeptides (and probably the amino-acids) which are contained in the blood serum. It was also found by other Russian investigators that these processes in frog's and bird's blood from one side and the mammal's from the other are different. The oxidation process in the mammal's blood is not the main and sole source of radiation. After it was proved by the author that radiation is the outcome of fermentative processes he began the detailed investigation of blood radiation in animals and persons with cancer. In his method he used as a detector yeast cultures. The first series of experiments were on mice that had been inoculated with adenocarcinoma. The material used was large and all the results obtained were identical: the blood radiation disappeared in all inoculated mice. The same manifestations were observed in seventeen persons with various cancerous ailments. The author examined also a great number of persons with many other diseases as well as healthy persons. All the healthy ones gave a positive mitogenetic effect. The author's especial attention was given to tuberculosis because with it there is always grave derangement in the nutrition of the system. The same positive results were obtained even in the most severe cases of tuberculosis. Patients with blood diseases (pernicious anemiz, leukemia, septicemia, pyemia and gangrene) gave a weak radiation or none at all. Therefore the mitogenetic radiation in cancer patients might be called typical but not specific. The author's technic is quite simple and could be performed even outside the clinic, while the newest German technic is much more complicated and difficult.

Early Recognition of Pregnancy.—Russin states that, by the method that he has developed during the last two years in examining over 1,800 pregnant women, he can detect and positively diagnose pregnancy even during the first two weeks. His method is as follows: For one-fourth to one-half minute he massages the body of the uterus externally with one of his hands and at the same time with one or two fingers of the other hand he massages the portio vaginalis internally. At the moment the massaged parts become more rigid he brings the body of the uterus to the cervix (by pressing with his fingers externally on the fundus or the posterior surface of the uterus, and with the internal fingers—on the posterior surface of the portio). With slight effort he succeeds in approximating the massaged parts to such a degree that can never be reached on uteri which are not gravid. At times this phenomenon is easily produced even without preliminary massage. In addition he pushes the cervix away from the body and increases the acute angle between them to a right or obtuse one or even to 180 degrees. Characteristic of this is that any mutual relations of the parts in which they are brought by these manipulations remain constant for a while. After a short period of time the uterus comes out from the so-called distorted status and returns to its original condition. Manipulating by this method on nongravid uteri, one cannot observe this phenomenon. The latter is manifested slightly or not at all by nursing, often menstruating, mothers on account of porosity of the tissues of the uteri. In 7 per cent of his cases, on account of pathologic conditions existing in the uterus and the adnexa or in the pelvis, the author was unable to depend on his method. The phenomenon is almost always negative in extra-uterine pregnancies, which once more confirms Küstner's hypothesis that the changes in the uterus are in no relation to the fertilized ovum but depend on the incretory changes of the ovary.

Nederlandsch Tijdschrift voor Geneeskunde, Haarlem

75: 1517-1712 (March 28) 1931

Influence of Light on Human Organism. L. K. Wolff.—p. 1521.
Dental Caries and Public Health. P. J. J. Coebergh.—p. 1536.
Water Distribution in Body as Function of Colloid-Osmotic Pressure in Blood and of Capillary Pressure. L. J. del Baere.—p. 1540.
*Mortality in the Netherlands Due to Pregnancy and Childbirth. D. G. Wesselink.—p. 1555.
Case of Eunuchoidism. A. P. Daniels.—p. 1566.
Peculiar Eye Disorder. C. van Bemmel.—p. 1573.

Mortality in the Netherlands Due to Pregnancy and Childbirth.—Wesselink brings out that, according to the official mortality statistics of the various countries, the Netherlands has one of the lowest rates as regards mortality due to pregnancy and to childbirth. However, since the period 1916-1920 the mortality from these causes has increased considerably. From various sources, reliable figures on mortality connected with confinement are secured. The mortality from infection after confinement may be placed at about 7 per 10,000 confinements. The total number of deaths after confinement must lie between twenty and thirty. Comparing his figures with the official statistics, he concludes that there has been since 1920 an actual increase of mortality due to pregnancy and childbirth.

Hygiea, Stockholm

93: 209-240 (March 31) 1931

*Periodic Paralysis. V. Johnsson.—p. 219.

Periodic Paralysis.—Johnsson's patient, a man aged 26, with a history of recurrent paralysis of brief duration for six years, has been well and able to work during the intervals. Examination during an attack showed complete paralysis, with total loss of electrical excitability of the muscles. The attack lasted forty-eight hours and was followed by a positive Babinski reflex for several days; otherwise there was no demonstrable neurologic symptom and the electric excitability of the muscles by faradic current was wholly restored.

Ugeskrift for Læger, Copenhagen

93: 349-374 (April 2) 1931

Accident Insurance Cases: XIV. Treatment of Lesions of Knee Region in Practice. H. Wulff.—p. 349.
*Purification and Concentration of Diphtheria Toxin and Diphtheria Toxoid, with Especial Regard to Active Immunization of Man Against Diphtheria. S. Schmidt.—p. 360.
Significance of Effect of Nonspecific Substances in Immunization Against Diphtheria. S. Schmidt.—p. 365.

Purification and Concentration of Diphtheria Toxin and Diphtheria Toxoid.—The results of his experiments seem to Schmidt to justify the hope of attaining complete immunity to diphtheria in man by the single injection of a sufficiently large dose of purified toxoid. The size of the dose can be determined only by extensive tests in the practice. Even if a dose of about 1,000 units should prove necessary, preparations can be made which in the volume of 1 cc. contain this quantity of antigen with a nitrogen content not exceeding that of the ordinary raw toxins. The possible by-effects of such concentrated preparations and the reactions following the treatment are still unknown.

CORRECTION

Changes in Bile Ducts Following Cholecysto-Entero-Anastomosis.—In the abstract of the article by Vallone (THE JOURNAL, June 6, p. 2001), the sentence "Cholecysto-enterostomy is incompatible with life" should read "Low cholecysto-enterostomy is incompatible with life" (Errata-corrige, published in *Annali Italiani di Chirurgia*, April 30, opposite page 369).